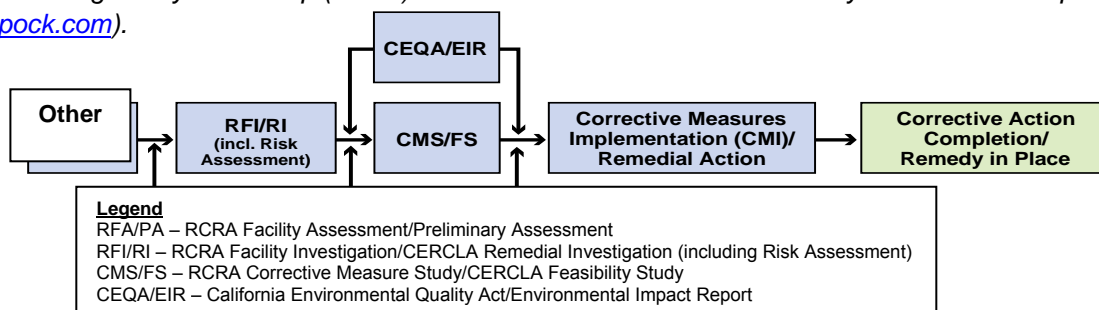


Topock Project Executive Abstract

<p>Document Title:</p> <p>Topock IM3 WDR Combined Second Quarter 2011 Monitoring, Jan-Jun 2011 Semiannual Operation and Maintenance Report</p> <p>Submitting Agency/Author: Regional Water Board</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: July 15, 2011</p> <p>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)</p> <p>PG&E</p> <p>Document ID Number:</p> <p>PGE20110715B</p>
<p>Priority Status: <input type="checkbox"/> HIGH <input type="checkbox"/> MED <input checked="" type="checkbox"/> LOW</p> <p>Is this time critical? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Action Required:</p> <p><input checked="" type="checkbox"/> Information Only <input type="checkbox"/> Review & Comment</p> <p>Return to: _____</p> <p>By Date: _____</p> <p><input type="checkbox"/> Other / Explain:</p>
<p>Type of Document:</p> <p><input type="checkbox"/> Draft <input checked="" type="checkbox"/> Report <input type="checkbox"/> Letter <input type="checkbox"/> Memo</p> <p><input type="checkbox"/> Other / Explain:</p>	<p>What does this information pertain to?</p> <p><input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)</p> <p><input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)</p> <p><input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS)</p> <p><input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action</p> <p><input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)</p> <p><input checked="" type="checkbox"/> Interim Measures</p> <p><input type="checkbox"/> Other / Explain:</p>
<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>Submittal of this report is a compliance requirement of Regional Water Board Waste Discharge Requirements/Order No. R7-2006-0060</p>	<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, why is the document needed?</p>
<p>Other Justification/s:</p> <p><input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>	
<p>Brief Summary of attached document:</p> <p>This report covers the Interim Measures No. 3 (IM3) groundwater treatment system monitoring activities during the Second Quarter 2011 period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program. This report also covers the IM3 operation and maintenance activities during the January – June 2011 semiannual period.</p>	
<p>Written by: PG&E</p>	
<p>Recommendations:</p> <p>This report is for your information only.</p>	
<p>How is this information related to the Final Remedy or Regulatory Requirements:</p> <p>The IM3 WDR Second Quarter 2011 Monitoring, Jan-Jun 2011 Semiannual Operation and Maintenance Report is related to the Interim Measure, and is designed to monitor compliance with Regional Water Board Waste Discharge Requirements/Order No. R7-2006-0060.</p>	
<p>Other requirements of this information?</p> <p>None.</p>	

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com).





**Pacific Gas and
Electric Company**

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July 15, 2011

Robert Perdue
Executive Officer
California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

Subject: Board Order R7-2006-0060
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System Discharge to Injection Wells
Combined Second Quarter 2011 Monitoring and Semiannual January-June 2011
Operation and Maintenance Report for Interim Measure No. 3 Groundwater Treatment
System
(Document ID: PGE20110715B)

Dear Mr. Perdue:

Enclosed is the Combined Second Quarter 2011 Monitoring and Semiannual January-June 2011 Operation and Maintenance Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Interim Measure No. 3 (IM3) Groundwater Treatment System.

This report is being submitted in compliance with the Waste Discharge Requirements (WDRs) issued September 20, 2006 by the California Regional Water Quality Control Board, Colorado River Basin Region (Regional Water Board) under Order R7-2006-0060 and in compliance with the revised Monitoring and Reporting Program for Order R7-2006-0060, issued August 28, 2009. The WDRs apply to IM3 Treatment System discharge by subsurface injection.

The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program.

If you have any questions regarding this report, please call me at (760) 326-5582.

Sincerely,

Curt Russell
Topock Site Manager

Enclosures:

Combined Second Quarter 2011 Monitoring and Semiannual January-June 2011 Operation and Maintenance Report for IM3 Groundwater Treatment System

cc: Jose Cortez, Regional Water Board
Tom Vandenberg, State Water Resources Control Board
Aaron Yue, California Department of Toxic Substances Control

**Combined Second Quarter 2011
Monitoring and Semiannual January – July
2011 Operation and Maintenance Report
for Interim Measure No. 3
Groundwater Treatment System**

**Waste Discharge Requirements
Board Order No. R7-2006-0060
PG&E Topock Compressor Station
Needles, California**

Prepared for
**California Regional Water Quality Control Board
Colorado River Basin Region**

On behalf of
Pacific Gas and Electric Company

July 15, 2011

CH2MHILL
155 Grand Avenue, Suite 800
Oakland, CA 94612

**Combined Second Quarter 2011 Monitoring and
Semiannual January - June 2011 Operation and Maintenance Report
for Interim Measure No. 3 Groundwater Treatment System**

Document ID: PGE20110715B

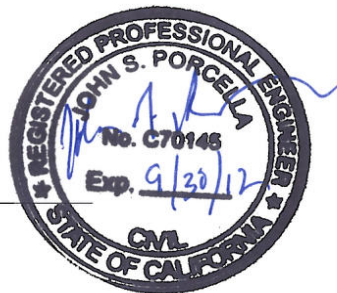
**Waste Discharge Requirements Order No. R7-2006-0060
PG&E Topock Compressor Station
Needles, California**

Prepared for
Pacific Gas and Electric Company

July 15, 2011

This report was prepared under the supervision of a
California Certified Professional Engineer

John Porcella, P.E.
Project Engineer



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A	Semiannual Operations and Maintenance Log, January 1, 2011 through June 30, 2011
B	Daily Volumes of Groundwater Treated
C	Flowmeter Calibration Records
D	Second Quarter 2011 Laboratory Analytical Reports

Acronyms and Abbreviations

gpm	gallons per minute
IM	Interim Measure
IM3	Interim Measure No. 3 Groundwater Treatment Plant
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
ppb	parts per billion
RCRA	Resource Conservation and Recovery Act
RO	reverse osmosis
Regional Water Board	California Regional Water Quality Control Board, Colorado River Basin Region
Truesdail	Truesdail Laboratories, Inc.
WDR	Waste Discharge Requirements

1.0 Introduction

Pacific Gas and Electric Company (PG&E) is implementing an Interim Measure (IM) to address chromium concentrations in groundwater at the Topock Compressor Station near Needles, California. The IM consists of groundwater extraction for hydraulic control of the plume boundaries in the Colorado River floodplain and management of extracted groundwater. The groundwater extraction, treatment, and injection systems collectively are referred to as IM3. Figure 1 provides a map of the project area. All figures are located at the end of this report.

California Regional Water Quality Control Board, Colorado River Basin Region (Regional Water Board) Board Order No. R7-2006-0060 authorizes PG&E to inject treated groundwater into injection wells located on San Bernardino County Assessor's Parcel No. 650-151-06. Order No. R7-2006-0060 was issued September 20, 2006 and is the successor to Order No. R7-2004-0103. The revised Monitoring and Reporting Program (MRP) under the Order, issued August 28, 2009, requires quarterly monitoring reports to be submitted by the fifteenth day of the month following the end of the quarter.

This report covers the IM3 groundwater treatment system monitoring activities during the Second Quarter 2011 and the operation and maintenance activities during the January 1, 2011 to June 30, 2011 semiannual period (First and Second Quarters 2011). The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program.

2.0 Sampling Station Locations

Table 1 lists the locations of sampling stations. (Tables are located at the end of this report.) Sampling station locations are shown on the process and instrumentation diagrams provided at the end of this report:

- Figure TP-PR-10-10-04 – Raw Water Storage and Treated Water Storage Tanks;
- Figures PR-10-03 and PR-10-04 – Reverse Osmosis System (diagrams 1 and 2 of 2);
- Figure TP-PR-10-10-06 – Sludge Storage Tanks;
- Figure TP-PR-10-10-03 – Extraction Wells; and
- Figure TP-PR-10-10-11 – Injection Wells.

3.0 Description of Monitoring Activities

This report describes Second Quarter 2011 monitoring activities and the January 1, 2011 through June 30, 2011 (First and Second Quarters) operation and maintenance activities related to the IM3 groundwater treatment system. IM3 monitoring activities from January 1, 2011 through March 31, 2011 (First Quarter monitoring) were presented in the following monitoring report:

- *IM3 First Quarter 2011 Monitoring Report for Groundwater Treatment System Waste Discharge Requirements Order No. R7-2006-0060*, submitted to the Water Board April 15, 2011.

The present report therefore also serves as the semiannual January through June 2011 Operation and Maintenance Report for IM3.

3.1 Groundwater Treatment System

The treatment system was initially operated between July 25 and July 28, 2005 for the Waste Discharge Requirement (WDR)-mandated startup phase. Discharge to the injection wells was initiated July 31, 2005 after successfully completing the startup phase in accordance with Order R7-2004-0103. Full-time operation of the treatment system commenced in August 2005.

Influent to the treatment facility, permitted by Order R7-2006-0060 (successor to Order R7-2004-0103), includes:

- Groundwater from extraction wells TW-2S, TW-2D, TW-3D, and PE-1.
- Purged groundwater and water generated from rinsing field equipment during monitoring events.
- Groundwater generated during well installation, well development, and aquifer testing.

Operation of the groundwater treatment system results in the following three effluent streams:

- **Treated Effluent:** Treated water that is discharged to the injection well(s).
- **Reverse Osmosis (RO) Concentrate (brine):** Treatment byproduct that is transported and disposed of offsite at a permitted facility.
- **Sludge:** Treatment byproduct that is transported offsite for disposal at a permitted facility, which occurs either when a sludge waste storage bin reaches capacity, or within 90 days of the start date for accumulation in the storage container, whichever occurs first.

3.2 Groundwater Treatment System Flow Rates for Second Quarter 2011

Downtime is defined as any periods when all extraction wells are not operating so that no groundwater is being extracted and piped into IM3 as influent. Periods of planned and unplanned extraction system downtime (that together resulted in approximately 7.5 percent downtime during Second Quarter 2011) are summarized in the Semiannual Operations and Maintenance Log provided in Appendix A. The times shown are in Pacific Standard Time to be consistent with other data collected (e.g., water level data) at the site. Periods of planned and unplanned extraction system downtime during the months January 2011 – March 2011 are reported in the *First Quarter 2011 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System Waste Discharge Requirements Order No. R7-2006-0060, PG&E Topock Compressor Station, Needles, CA*, published April 15, 2011.

Data regarding daily volumes of groundwater treated and discharged are provided in Appendix B. The IM3 groundwater treatment system flowmeter calibration records are included in Appendix C.

3.2.1 Treatment System Influent

During the Second Quarter 2011, extraction wells TW-3D and PE-1 operated at a target pumping rate of 135 gallons per minute, excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not pumped during Second Quarter 2011. The operational run time for the IM groundwater extraction system (combined or individual pumping), by month, was approximately:

- 86.3 percent during April 2011.
- 99.6 percent during May 2011.
- 92.4 percent during June 2011.

The Second Quarter 2011 treatment system monthly average flow rates (influent, effluent, and RO concentrate) are presented in Table 2. The system influent flow rate was measured by flow meters at groundwater extraction wells TW-2S, TW-2D, TW-3D, and PE-1 (Figure TP-PR-10-10-03).

The IM3 facility treated approximately 16,334,980 gallons of extracted groundwater during Second Quarter 2011.

In addition to extracted groundwater, during Second Quarter 2011 the IM3 facility treated 5,575 gallons of water generated from the groundwater monitoring program and 43,200 gallons of injection well rehabilitation (backwashing) water.

3.2.2 Effluent Streams

The treatment system effluent flow rate was measured by flow meters in the piping leading to injection wells IW-2 and IW-3 (Figure TP-PR-10-10-11) and in the piping running from the treated water tank T-700 to the injection wells (Figure TP-PR-10-10-04). The IM3 facility injected 15,965,916 gallons of treatment system effluent during Second Quarter 2011. The monthly average flow rate to injection wells is shown in Table 2.

The reverse osmosis concentrate flow rate was measured by a flow meter at the piping carrying water from RO concentrate tank T-701 to the truck load-out station (Figures PR-10-03 and PR-10-04). The IM3 facility generated 260,521 gallons of RO concentrate during Second Quarter 2011. The monthly average RO concentrate flow rate is shown in Table 2.

The sludge flow rate is measured by the size and weight of containers shipped offsite. Six sludge containers were shipped offsite from the IM3 facility during Second Quarter 2011. The shipment dates and approximate weights are provided in Section 5.3.

3.3 Sampling and Analytical Procedures

With the exception of samples for pH analyses, all samples collected at the designated sampling locations were placed directly into containers provided by Truesdail Laboratories, Inc. (Truesdail). Sample containers were labeled and packaged according to standard sampling procedures.

The samples were stored in a sealed container chilled with ice and transported to the laboratories via courier under chain-of-custody documentation. The laboratories confirmed the samples were received in chilled condition upon arrival.

Samples analysis for pH was conducted by field method pursuant to the Regional Water Board letter dated October 16, 2007 (subject: Clarification of Monitoring and Reporting Program Requirements) authorizing pH measurements to be conducted in the field. The field method pH samples were collected at the designated sampling locations and field tested within 15 minutes of sampling.

As required by the MRP, the analytical method selected for total chromium has a method detection limit of 1 part per billion (ppb), and the analytical method selected for hexavalent chromium has a method detection limit of 0.2 ppb.

Truesdail is certified by the California Department of Health Services under the State of California's Environmental Laboratory Accreditation Program. California-certified laboratory analyses were performed in accordance with the latest edition of the *Guidelines Establishing Test Procedures for Analysis of Pollutants* (40 Code of Federal Regulations Part 136), promulgated by the United States Environmental Protection Agency.

Influent, effluent, reverse osmosis concentrate, and sludge sampling was conducted in accordance with the revised MRP, issued August 28, 2009. See Table 3 for sample collection dates and frequencies.

Groundwater quality is being monitored in observation and compliance wells according to Order R7-2006-0060 and the procedures and schedules approved in the *Groundwater Compliance Monitoring Plan for Interim Measures No. 3 Injection Area* submitted to the Water Board on June 17, 2005. Quarterly groundwater monitoring analytical results for the injection area (wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D) are reported in a separate document, in conjunction with groundwater level maps of the same monitoring wells.

4.0 Analytical Results

The analytical results and laboratory reports for the IM3 groundwater treatment system monitoring program between January 1, 2011 and March 31, 2011 were included in the First Quarter Monitoring Reports submitted to the Water Board (see Section 3.0 for a complete listing of report).

Laboratory reports for samples collected in Second Quarter 2011 were prepared by certified analytical laboratories, and are presented in Appendix D. The Second Quarter 2011 analytical results are presented in Tables 4, 5, 6, and 7:

- Influent analytical results are presented in Table 4.
- Effluent analytical results are presented in Table 5. There were no exceedances of effluent limitations during the reporting period.
- Reverse osmosis concentrate analytical results are presented in Table 6.
- Sludge analytical results are presented in Table 7.

The sludge is required to have an aquatic bioassay test annually. The aquatic bioassay test results were conducted on a September 2010 sample and were presented in the Third Quarter Monitoring Report submitted to the Water Board October 15, 2010. IM3 will conduct the 2011 sludge aquatic bioassay test in the second half of the year.

Table 8 identifies the following information for each analysis:

- Sample location
- Sample identification number
- Sampler name
- Sample date
- Sample time
- Laboratory performing analysis
- Analysis method
- Analysis date
- Laboratory technician

5.0 Semiannual Operation and Maintenance

Pursuant to the WDR's Operations and Maintenance Section 1:

The discharger shall inspect and document any operation/maintenance problems by inspecting each unit process. In addition, calibration of flow meters and equipment shall be performed in a timely manner and documented. Operation and Maintenance reports shall be submitted to the Regional Water Board Office twice annually.

This section includes the Semiannual Operation and Maintenance Report for the IM3 groundwater treatment system for the period January 1, 2011 through June 30, 2011.

All operations and maintenance records are maintained at the facility, including site inspection forms, process monitoring records, hazardous waste generator records (i.e., waste manifests), and self-monitoring reports. These records will be maintained onsite for a period of at least 5 years. Operational programmable logic controller data (flow rates, system alarms, process monitoring data, etc.) are maintained electronically via data historian software. Operations and maintenance records are also archived using maintenance software. The subsections below summarize the operations and maintenance activities during this semiannual reporting period.

5.1 Flowmeter Calibration Records

The IM3 groundwater treatment system flowmeter calibration records are included in Appendix C. Flowmeter calibrations are performed in a timely manner consistent with the use, flow, material, and manufacturer recommendations. The following flowmeters are used at the plant to measure groundwater flow.

Location	Flowmeter Location ID	Current Flowmeter Serial No.	Date of Calibration	Date of Installation
Extraction well PE-1	FIT-103	6A021F16000	11/29/04	7/6/11
Extraction well TW-3D	FIT-102	6C037016000	9/12/07	2/25/09
Extraction well TW-2D ^a	FIT-101	7700F216000	11/30/06	7/6/11
Extraction well TW-2S ^b	FIT-100	6A022016000	11/29/04	7/28/05
Injection well IW-02	FIT-1202	6C036F16000	8/6/10	1/5/11
Injection well IW-03	FIT-1203	6A022116000	8/6/10	12/15/10
Combined IW-02 and IW-03	FIT-702	7700F316000	12/7/06	4/9/10
Reverse osmosis concentrate	FIT-701	6C037116000	2/26/09	4/1/11

Notes:

^a TW-2D is a backup extraction well only operated for brief testing and sampling periods since January 2006.

^b TW-2S is a backup extraction well only operated for brief testing and sampling periods since October 2005.

5.2 Volumes of Groundwater Treated

Data regarding daily volumes of groundwater treated between January 1, 2011 and June 30, 2011 are provided in Appendix B.

Approximately 33,435,048 gallons of groundwater were extracted and treated between January 1, 2011 and June 30, 2011. Treatment of this water at the IM3 facility is being performed in accordance with the conditions of Order No. R7-2006-0060.

Additionally, approximately 10,975 gallons of well purge water (generated during well development, monitoring well sampling, and/or aquifer testing) and 75,600 gallons of injection well rehabilitation (backwashing) water were treated at the IM3 facility during the January 1, 2011 through June 30, 2011 semiannual period.

A total of approximately 32,569,981 gallons of treated groundwater was injected back into the Alluvial Aquifer between January 1, 2011 and June 30, 2011.

5.3 Residual Solids Generated (Sludge)

During the January 1, 2011 through June 30, 2011 reporting period, ten containers of sludge were shipped offsite for disposal. The sludge was shipped to California certified disposal facilities for disposal. A listing of each shipment during the January 1, 2011 through June 30, 2011 reporting period is provided below.

Date Sludge Bin Removed from Site	Approximate Quantity from Waste Manifests (cubic yards)	Approximate Wet Weight (lbs)	Type of Shipment
2/2/11	8	14,720	non-RCRA hazardous waste
2/2/11	8	15,400	non-RCRA hazardous waste
3/10/11	9	15,520	non-RCRA hazardous waste
3/10/11	9	14,480	non-RCRA hazardous waste
4/19/11	8	13,620	non-RCRA hazardous waste
4/19/11	8	14,960	non-RCRA hazardous waste
5/11/11	8	16,700	non-RCRA hazardous waste
5/11/11	8	15,880	non-RCRA hazardous waste
6/23/11	8	11,000	non-RCRA hazardous waste
6/23/11	8	12,720	non-RCRA hazardous waste

Notes:

The approximate wet weight is provided by the disposal facility based on full container weight less the empty container weight.

RCRA = Resource Conservation and Recovery Act.

5.4 Reverse Osmosis Concentrate Generated

Data regarding daily volumes of reverse osmosis concentrate generated are provided in Appendix B, as measured by flowmeter FIT-701 (Figures PR-10-03 and PR-10-04). From January 1, 2011 through June 30, 2011, approximately 545,019 gallons of RO concentrate were transported to Liquid Environmental Solutions in Phoenix, Arizona for disposal.

5.5 Summary of WDR Compliance

No WDR violations were identified during the January 1, 2011 through June 30, 2011 semiannual reporting period.

5.6 Operation and Maintenance – Required Shutdowns

Records of maintenance activities are kept onsite.

Appendix A contains a summary of the operation and maintenance issues that required the groundwater extraction system to be shut down during the January 1, 2011 through June 30, 2011 semiannual reporting period.

Activities during the Second Quarter 2011 included one planned extended shutdown in April, as discussed below. No extended shutdowns of the IM3 extraction system occurred during the First Quarter 2011.

April Extended Shutdown

The IM3 extraction system was shut down for 4 days, 1 hour and 46 minutes during April 2011, for both planned and unplanned events. See Appendix A for a summary of the operation and maintenance issues. The main cause of the extraction system downtime was:

- The planned biannual plant outage for maintenance.

5.7 Treatment Plant Modifications

No major IM3 treatment plant modifications that affected the quality or quantity of treated effluent were performed during the January 1, 2011 through June 30, 2011 semiannual period.

6.0 Conclusions

There were no exceedances of effluent limitations during the reporting period.

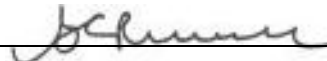
In addition, no incidents of non-compliance were identified during the reporting period. No events that caused an immediate or potential threat to human health or the environment, and no new releases of hazardous waste or hazardous waste constituents, or new solid waste management units, were identified during the reporting period.

7.0 Certification

On August 12, 2005, PG&E submitted a signature delegation letter to the Water Board, delegating PG&E signature authority to Mr. Curt Russell and Ms. Yvonne Meeks for correspondence regarding Board Order R7-2004-0103. Order R7-2006-0060 is the successor to Order R7-2004-0103; an additional signature authority delegation is not required, as confirmed in an email from Jose Cortez dated December 12, 2006.

Certification Statement:

I declare under the penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

Signature: 

Name: Curt Russell

Company: Pacific Gas and Electric Company

Title: Topock Site Manager

Date: July 15, 2011

Tables

TABLE 1
 Sampling Station Descriptions
Second Quarter 2011 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Sampling Station	Sample ID ^a	Location
Sampling Station A: Groundwater Treatment System Influent	SC-100B-WDR-###	Sample collected from tap on pipe into T-100 (see Figure TP-PR-10-10-04).
Sampling Station B: Groundwater Treatment System Effluent	SC-700B-WDR-###	Sample collected from tap on pipe downstream from T-700 (see Figure TP-PR-10-10-04).
Sampling Station D: Groundwater Treatment System Reverse Osmosis Concentrate	SC-701-WDR-###	Sample collected from tap on pipe into T-701 (see Figures PR-10-03 and PR-10-04).
Sampling Station E: Groundwater Treatment System Sludge	SC-SLUDGE-WDR-###	Sample collected from sludge accumulated in the phase separator used this quarter (see Figure TP-PR-10-10-06).

Notes:

= Sequential sample identification number at each sample station.

^a The sample event number is included at the end of the sample ID (e.g., SC-100B-WDR-015).

TABLE 2

Flow Monitoring Results

Second Quarter 2011 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	System Influent ^{a,b} (gpm)	System Effluent ^{b,c} (gpm)	Reverse Osmosis Concentrate ^b (gpm)
April 2011 Average Monthly Flowrate	116.0	113.5	1.9
May 2011 Average Monthly Flowrate	133.3	130.5	2.1
June 2011 Average Monthly Flowrate	124.4	121.2	1.9

Notes:

gpm: gallons per minute.

January, February, and March 2011 Average Monthly Flowrates were presented in the IM3 First Quarter 2011 Monitoring Report.

^a Extraction wells TW-3D and PE-1 were operated during the Second Quarter 2011 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not operated during Second Quarter 2011.

^b The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Second Quarter 2011 is approximately 0.66 percent.

^c Effluent was discharged into injection wells IW-02 and IW-03 during the Second Quarter 2011.

TABLE 3
Sample Collection Dates
Second Quarter 2011 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	Sample Collection Dates	Results
Influent ^a	April 5, 2011	See Table 4
	May 2, 2011	
	June 7, 2011	
Effluent ^b	April 5, 2011	See Table 5
	April 12, 2011	
	April 19, 2011	
	April 25, 2011	
	May 2, 2011	
	May 10, 2011	
	May 17, 2011	
	May 24, 2011	
	May 31, 2011	
	June 7, 2011	
	June 14, 2011	
	June 21, 2011	
	June 28, 2011	
Reverse Osmosis Concentrate ^c	April 5, 2011	See Table 6
Sludge ^d	April 19, 2011	See Table 7
	April 19, 2011	
	May 11, 2011	
	May 11, 2011	
	June 23, 2011	
	June 23, 2011	

Notes:

^a Influent sampling is required monthly.

^b Effluent sampling is required weekly.

^c Reverse osmosis concentrate sampling is required quarterly.

^d One composite sludge sample is required quarterly. Six sludge bins were shipped off-site on April 19, 2011, May 11, 2011 and June 23, 2011, and all were sampled to add to the composite sample. Sludge bioassay analysis is required annually, and was conducted on the Third Quarter 2010 sludge composite sample, reported (pass at 95 percent survival rate) in the IM3 Third Quarter 2010 Monitoring Report. IM3 will conduct the 2011 sludge aquatic bioassay test in the second half of the year.

TABLE 4
Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)
Influent Monitoring Results ^a
Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Required Sampling Frequency		Monthly																								
<div>Sample ID</div>	<div>Date</div>	<div>Analytes Units ^b MDL</div>	TDS	Turbidity	Specific Conductance	Field ^c pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc	
			mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L
			0.434	0.0140	0.0380	---	0.110	2.20	2.80	0.0020	0.190	0.260	0.180	0.0050	0.120	0.0250	0.0950	0.190	0.840	0.150	0.0550	0.00020	0.500	1.30	1.30	
SC-100B-WDR-303	4/5/2011		4770	0.114	8080	7.4	894	912	ND (50.0)	ND (0.500)	ND (10.0)	3.20	27.5	1.13	ND (5.00)	2.49	ND (10.0)	10.1	22.9	ND (10.0)	3.22	ND (0.0050)	570	ND (20.0)	ND (10.0)	
RL			250	0.100	2.00	---	2.00	21.0	50.0	0.500	10.0	1.00	10.0	0.200	5.00	0.500	10.0	1.00	10.0	10.0	1.00	0.0050	12.5	20.0	10.0	
SC-100B-WDR-307	5/2/2011		4720	ND (0.100)	7960	7.3	817	832	ND (50.0)	ND (0.500)	ND (10.0)	3.80	28.3	1.05	12.3	2.49	ND (10.0)	11.5	20.9	ND (10.0)	3.03	ND (0.0050)	562	ND (20.0)	ND (10.0)	
RL			125	0.100	2.00	---	2.00	21.0	50.0	0.500	10.0	1.00	10.0	0.200	5.00	0.500	10.0	1.00	10.0	10.0	1.00	0.0050	25.0	20.0	10.0	
SC-100B-WDR-312	6/7/2011		4680	0.120	7860	7.4	863	879	ND (50.0)	ND (0.500)	ND (10.0)	3.90	25.9	1.12	ND (5.00)	2.59	ND (10.0)	9.30	22.9	ND (10.0)	5.36	ND (0.0050)	540	ND (20.0)	ND (10.0)	
RL			125	0.100	2.00	---	1.00	21.0	50.0	0.500	10.0	1.00	10.0	0.200	5.00	0.500	10.0	1.00	10.0	10.0	1.00	0.0050	25.0	20.0	10.0	

NOTES:
(---) = not required by the WDR Monitoring and Reporting Program
MDL = method detection limit
mg/L = milligrams per liter
N = nitrogen
ND = parameter not detected at the listed value
NTU = nephelometric turbidity units
RL = project reporting limit
µg/L = micrograms per liter
µmhos/cm = micromhos per centimeter

^a Sampling Location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).
^b Units reported in this table are those units required in the WDRs.
^c Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 5
Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)
Effluent Monitoring Results^a
Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

WDRs Effluent Limits ^b	Ave. Monthly Max Daily	NA	NA	NA	6.5-8.4	6.5-8.4	25	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		NA	NA	NA	6.5-8.4	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Required Sampling Frequency		Weekly							Monthly																	
<div><div></div><div>Analytes Units^c</div><div>MDL^d</div></div>	Date	TDS	Turbidity	Specific Conductance	Field pH ^e	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc		
		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	
		0.434	0.0140	0.0380	---	0.0190	0.0220	14.2	0.0020	0.190	0.260	0.180	0.0050	0.120	0.0250	0.0950	0.0420	0.840	0.150	0.0550	0.00020	1.00	1.30	1.30		
Sample ID																										
SC-700B-WDR-303	4/5/2011	4150	ND (0.100)	7500	7.30	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (10.0)	ND (1.00)	14.0	1.05	ND (5.00)	2.01	ND (10.0)	5.50	17.3	ND (10.0)	2.88	ND (0.0050)	518	ND (20.0)	ND (10.0)		
	RL	250	0.100	2.00	---	1.00	0.200	50.0	0.500	10.0	1.00	10.0	0.200	5.00	0.500	10.0	1.00	10.0	10.0	1.00	0.0050	50.0	20.0	10.0		
SC-700B-WDR-304	4/12/2011	4320	ND (0.100)	7460	7.00	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	1.80	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---		
SC-700B-WDR-305	4/19/2011	4370	ND (0.100)	7550	7.20	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	2.70	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---		
SC-700B-WDR-306	4/25/2011	4260	0.168	7360	7.10	ND (1.00) ^f	ND (0.200)J	---	---	---	---	---	---	---	---	---	4.70	---	---	---	---	---	---	---		
	RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---		
SC-700B-WDR-307	5/2/2011	4180	ND (0.100)	7420	7.20	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (10.0)	ND (1.00)	13.3	1.08	ND (5.00)	2.12	ND (10.0)	5.80	17.6	ND (10.0)	2.76	ND (0.0050)	502	ND (20.0)	ND (10.0)		
	RL	125	0.100	2.00	---	1.00	0.200	50.0	0.500	10.0	1.00	10.0	0.200	5.00	0.500	10.0	1.00	10.0	10.0	1.00	0.0050	50.0	20.0	10.0		
SC-700B-WDR-308	5/10/2011	4300	0.103	7330	7.00	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	7.60	---	---	---	---	---	---	---		
	RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---		
SC-700B-WDR-309	5/17/2011	4400	0.103	7420	7.20	ND (1.00)	0.200	---	---	---	---	---	---	---	---	---	2.80	---	---	---	---	---	---	---		
	RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---		
SC-700B-WDR-310	5/24/2011	4220	ND (0.100)	7350	7.10	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	1.60	---	---	---	---	---	---	---		
	RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---		
SC-700B-WDR-311	5/31/2011	4330	ND (0.100)	7370	7.00	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	1.50	---	---	---	---	---	---	---		
	RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---		
SC-700B-WDR-312	6/7/2011	4300	ND (0.100)	7270	7.10	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (10.0)	ND (1.00)	15.4	1.08	ND (5.00)	2.34	ND (10.0)	3.40	19.5	ND (10.0)	3.32	ND (0.0050)	502	ND (20.0)	ND (10.0)		
	RL	2.50	0.100	2.00	---	1.00	0.200	50.0	0.500	10.0	1.00	10.0	0.200	5.00	0.500	10.0	1.00	10.0	10.0	1.00	0.0050	25.0	20.0	10.0		
SC-700B-WDR-313	6/14/2011	4060	ND (0.100)	7080	7.00	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	6.30	---	---	---	---	---	---	---		
	RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---		
SC-700B-WDR-314	6/21/2011	4120	0.113	7220	7.10	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	10.6	---	---	---	---	---	---	---		
	RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---		
SC-700B-WDR-315	6/28/2011	4100	0.139	7090	6.90	1.10	ND (0.200)	---	---	---	---	---	---	---	---	---	ND (1.00)	---	---	---	---	---	---	---		
	RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---		

TABLE 5
Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)
Effluent Monitoring Results^a
Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

NOTES:

(---) = not required by the WDR Monitoring and Reporting Program
J = concentration or reporting limits estimated by laboratory or validation
MDL = method detection limit
mg/L = milligrams per liter
N = nitrogen
NA = not applicable
ND = parameter not detected at the listed value
NTU = nephelometric turbidity units
RL = project reporting limit
µg/L = micrograms per liter
µmhos/cm = micromhos per centimeter

^a Sampling location for all effluent samples is tap on pipe downstream from tank T-700 to injection wells (see attached P&ID TP-PR-10-10-04).
^b In addition to the listed effluent limits, the WDRs state that the effluent shall not contain heavy metals, chemicals, pesticides or other constituents in concentrations toxic to human health.
^c Units reported in this table are those units required in the WDRs.
^d MDL listed is the target MDL by analysis method; however, the MDL may change for each sample analysis due to the dilution required by the matrix to meet the method QC requirements. The target MDL for each method/analyte combination is calculated annually.
^e Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.
^f Results are flagged J because samples were analyzed outside the EPA recommended holding time of 7 days. TDS were positively identified; however, quantitation is considered an estimate. The results are considered valid for decision making purposes.

TABLE 6
Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)
Reverse Osmosis Concentrate Monitoring Results ^a
Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Required Sampling Frequency		Quarterly																						
<div>Sample ID</div>	<div>Date</div>	<div>Analytes Units^b MDL</div>	TDS	Specific Conductance	Field ^c pH	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
			mg/L	µmhos/cm	pH units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			0.434	0.0380	---	0.000095	0.00022	0.00019	0.00026	0.00037	0.0020	0.00012	0.000075	0.00030	0.0250	0.00019	0.0040	0.00020	0.00024	0.00074	0.00040	0.00018	0.00010	0.0020
SC-701-WDR-303	4/5/2011		27600	41600	7.4	0.00400	0.00240	ND (0.0100)	ND (0.0010)	0.0932	ND (0.0100)	ND (0.0030)	ND (0.0050)	0.00550	14.5	ND (0.0100)	0.121	ND (0.0010)	0.0105	0.0227	ND (0.0050)	ND (0.0010)	ND (0.0050)	ND (0.0100)
RL			500	2.00	---	0.0010	0.0021	0.0100	0.0010	0.0100	0.0100	0.0030	0.0050	0.0050	0.500	0.0100	0.0100	0.0010	0.0100	0.0100	0.0050	0.0010	0.0050	0.0100

NOTES:
(---) = not required by the WDR Monitoring and Reporting Program
MDL = method detection limit
mg/L = milligrams per liter
ND = parameter not detected at the listed value
RL = project reporting limit
µg/L = micrograms per liter
µmhos/cm = micromhos per centimeter

^a Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).
^b Units reported in this table are those units required in the WDRs.
^c Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 7
Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)
Sludge Monitoring Results^a
Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Required Sampling Frequency		Quarterly																		
<div><div></div><div></div><div></div></div>	Analytes	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
	Units ^b	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	MDL	0.0060	0.200	0.0059	0.0078	0.0045	0.0040	0.0055	0.0053	0.0055	0.0050	0.0010	0.0080	0.00020	0.0051	0.0040	0.0044	0.0020	0.0035	0.0040
Sample ID	Date																			
SC-Sludge-WDR-303	4/5/2011	3240	34.5	32.1	ND (2.00)	52.2	3.52	ND (2.00)	3.36	18.6	23.3	5.58	5.86	ND (0.100)	14.6	ND (2.00)	ND (2.00)	ND (2.00)	38.7	17.7
RL		2.00	4.04	2.00	2.00	2.00	2.00	2.00	2.00	2.00	4.04	1.00	2.00	0.100	2.00	2.00	2.00	2.00	2.00	2.00

NOTES:
(---) = not required by the WDR Monitoring and Reporting Program
mg/kg = milligrams per killogram
mg/L = milligrams per liter
MDL = method detection limit
ND = parameter not detected at the listed reporting limit
RL = project reporting limit

^a Sampling location for all sludge samples is the sludge collection bin (see attached P&ID TP-PR-10-10-06).
^b Units reported in this table are those units required in the WDRs.

TABLE 8

Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)

Monitoring Information

Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-303	C.Knight	4/5/2011	3:06:00 PM	TLI	EPA 120.1	SC	4/7/2011	Iordan Stavrev
					TLI	EPA 200.7	AL	4/21/2011	Ethel Suico
					TLI	EPA 200.7	B	4/28/2011	Ethel Suico
					TLI	EPA 200.7	FE	4/21/2011	Ethel Suico
					TLI	EPA 200.7	MO	4/28/2011	Ethel Suico
					TLI	EPA 200.7	ZN	4/28/2011	Ethel Suico
					TLI	EPA 200.8	AS	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	BA	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	CR	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	CU	4/28/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	MN	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	NI	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	PB	5/5/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	SB	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 218.6	CR6	4/6/2011	Sonya Bersudsky
					TLI	EPA 300.0	FL	4/6/2011	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	4/6/2011	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	4/7/2011	Giawad Ghenniwa
					FIELD	HACH	PH	4/5/2011	C.Knight
					TLI	SM2130B	TRB	4/6/2011	Gautam Savani
					TLI	SM2540C	TDS	4/8/2011	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	4/6/2011	Iordan Stavrev
					TLI	SM4500NO2B	NO2N	4/6/2011	Jenny Tankunakorn
SC-100B	SC-100B-WDR-307	Chris Lentz	5/2/2011	2:20:00 PM	TLI	EPA 120.1	SC	5/5/2011	Gautam Savani
					TLI	EPA 200.7	AL	5/9/2011	Ethel Suico
					TLI	EPA 200.7	B	5/9/2011	Ethel Suico
					TLI	EPA 200.7	FE	5/9/2011	Ethel Suico
					TLI	EPA 200.7	FETD	5/9/2011	Ethel Suico
					TLI	EPA 200.8	AS	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	BA	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	CR	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	CU	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MND	5/11/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MO	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	NI	5/9/2011	Katia Kiarashpoor

TABLE 8

Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)

Monitoring Information

Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-307	Chris Lentz	5/2/2011	2:20:00 PM	TLI	EPA 200.8	PB	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	SB	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	ZN	5/9/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	5/3/2011	Sonya Bersudsky
					TLI	EPA 300.0	FL	5/3/2011	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	5/3/2011	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	5/4/2011	Giawad Ghenniwa
					FIELD	HACH	PH	5/2/2011	Ron Phelps
					TLI	SM 2320B	ALKB	5/6/2011	Kim Luck
					TLI	SM 2320B	ALKC	5/6/2011	Kim Luck
					TLI	SM2130B	TRB	5/3/2011	Gautam Savani
					TLI	SM2540C	TDS	5/5/2011	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	5/9/2011	Maria Mangarova
					TLI	SM4500NO2B	NO2N	5/3/2011	Jenny Tankunakorn
SC-100B	SC-100B-WDR-312	C.Knight	6/7/2011	2:08:00 PM	TLI	EPA 120.1	SC	6/10/2011	Gautam Savani
					TLI	EPA 200.7	AL	6/16/2011	Ethel Suico
					TLI	EPA 200.7	B	6/16/2011	Ethel Suico
					TLI	EPA 200.7	FE	6/16/2011	Ethel Suico
					TLI	EPA 200.7	FETD	6/16/2011	Ethel Suico
					TLI	EPA 200.8	AS	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	BA	6/22/2011	Katia Kiarashpoor
					TLI	EPA 200.8	CR	6/16/2011	Katia Kiarashpoor
					TLI	EPA 200.8	CU	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MND	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MO	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	NI	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	PB	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	SB	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	ZN	6/16/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	6/8/2011	Sonya Bersudsky
					TLI	EPA 300.0	FL	6/10/2011	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	6/8/2011	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	6/10/2011	Giawad Ghenniwa
					FIELD	HACH	PH	6/7/2011	C.Knight
					TLI	SM 2320B	ALKB	6/10/2011	Kim Luck

TABLE 8

Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)

Monitoring Information

Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-312	C.Knight	6/7/2011	2:08:00 PM	TLI	SM 2320B	ALKC	6/10/2011	Kim Luck
					TLI	SM2130B	TRB	6/8/2011	Gautam Savani
					TLI	SM2540C	TDS	6/8/2011	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	6/8/2011	Maria Mangarova
					TLI	SM4500NO2B	NO2N	6/9/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-303	C.Knight	4/5/2011	2:53:00 PM	TLI	EPA 120.1	SC	4/7/2011	Iordan Stavrev
					TLI	EPA 200.7	AL	4/21/2011	Ethel Suico
					TLI	EPA 200.7	B	4/28/2011	Ethel Suico
					TLI	EPA 200.7	FE	4/21/2011	Ethel Suico
					TLI	EPA 200.7	MO	4/28/2011	Ethel Suico
					TLI	EPA 200.7	ZN	4/28/2011	Ethel Suico
					TLI	EPA 200.8	AS	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	BA	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	CR	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	CU	4/28/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	MN	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	NI	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	PB	5/5/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	SB	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 218.6	CR6	4/6/2011	Sonya Bersudsky
					TLI	EPA 300.0	FL	4/6/2011	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	4/6/2011	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	4/7/2011	Giawad Ghenniwa
					FIELD	HACH	PH	4/5/2011	C.Knight
					TLI	SM2130B	TRB	4/6/2011	Gautam Savani
					TLI	SM2540C	TDS	4/8/2011	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	4/6/2011	Iordan Stavrev
					TLI	SM4500NO2B	NO2N	4/6/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-304	Ron Phelps	4/12/2011	1:00:00 PM	TLI	EPA 120.1	SC	4/15/2011	Gautam Savani
					TLI	EPA 200.8	CR	4/19/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	4/19/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	4/13/2011	Sonya Bersudsky
					FIELD	HACH	PH	4/12/2011	Ron Phelps
					TLI	SM2130B	TRB	4/13/2011	Gautam Savani
					TLI	SM2540C	TDS	4/14/2011	Jenny Tankunakorn

TABLE 8

Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)

Monitoring Information

Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-305	Ron Phelps	4/19/2011	1:30:00 PM	TLI	EPA 120.1	SC	4/20/2011	Gautam Savani/Jordan Stavrev
					TLI	EPA 200.8	CR	4/28/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	4/28/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	4/21/2011	Sonya Bersudsky
					FIELD	HACH	PH	4/19/2011	Ron Phelps
					TLI	SM2130B	TRB	4/20/2011	Gautam Savani
					TLI	SM2540C	TDS	4/20/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-306	Ron Phelps	4/25/2011	7:50:00 AM	TLI	EPA 120.1	SC	4/26/2011	Gautam Savani
					TLI	EPA 200.8	CR	5/5/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	5/5/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	4/28/2011	Sonya Bersudsky
					FIELD	HACH	PH	4/25/2011	Ron Phelps
					TLI	SM2130B	TRB	4/27/2011	Gautam Savani
					TLI	SM2540C	TDS	4/26/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-307	Chris Lentz	5/2/2011	2:20:00 PM	TLI	EPA 120.1	SC	5/5/2011	Gautam Savani
					TLI	EPA 200.7	AL	5/9/2011	Ethel Suico
					TLI	EPA 200.7	B	5/9/2011	Ethel Suico
					TLI	EPA 200.7	FE	5/9/2011	Ethel Suico
					TLI	EPA 200.8	AS	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	BA	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	CR	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	CU	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MO	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	NI	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	PB	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	SB	5/9/2011	Katia Kiarashpoor
					TLI	EPA 200.8	ZN	5/9/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	5/3/2011	Sonya Bersudsky
					TLI	EPA 300.0	FL	5/3/2011	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	5/3/2011	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	5/4/2011	Giawad Ghenniwa
					FIELD	HACH	PH	5/2/2011	Ron Phelps
					TLI	SM2130B	TRB	5/3/2011	Gautam Savani
					TLI	SM2540C	TDS	5/5/2011	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	5/9/2011	Maria Mangarova

TABLE 8

Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)

Monitoring Information

Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-307	Chris Lentz	5/2/2011	2:20:00 PM	TLI	SM4500NO2B	NO2N	5/3/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-308	Ron Phelps	5/10/2011	10:00:00 AM	TLI	EPA 120.1	SC	5/11/2011	Gautam Savani
					TLI	EPA 200.8	CR	5/13/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	5/13/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	5/11/2011	Sonya Bersudsky
					FIELD	HACH	PH	5/10/2011	Ron Phelps
					TLI	SM2130B	TRB	5/11/2011	Gautam Savani
					TLI	SM2540C	TDS	5/12/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-309	Ron Phelps	5/17/2011	2:00:00 PM	TLI	EPA 120.1	SC	5/20/2011	Gautam Savani
					TLI	EPA 200.8	CR	6/7/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	6/7/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	5/18/2011	Sonya Bersudsky
					FIELD	HACH	PH	5/17/2011	Ron Phelps
					TLI	SM2130B	TRB	5/18/2011	Gautam Savani
					TLI	SM2540C	TDS	5/19/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-310	Ron phelps	5/24/2011	10:00:00 AM	TLI	EPA 120.1	SC	5/25/2011	Gautam Savani
					TLI	EPA 200.8	CR	6/7/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	6/7/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	5/26/2011	Sonya Bersudsky
					FIELD	HACH	PH	5/24/2011	Ron Phelps
					TLI	SM2130B	TRB	5/25/2011	Gautam Savani
					TLI	SM2540C	TDS	5/25/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-311	Ron Phelps	5/31/2011	10:00:00 AM	TLI	EPA 120.1	SC	6/1/2011	Gautam Savani
					TLI	EPA 200.8	CR	6/7/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	6/7/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	6/2/2011	Sonya Bersudsky
					FIELD	HACH	PH	5/31/2011	Ron Phelps
					TLI	SM2130B	TRB	6/1/2011	Gautam Savani
					TLI	SM2540C	TDS	6/2/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-312	C.Knight	6/7/2011	2:11:00 PM	TLI	EPA 120.1	SC	6/10/2011	Gautam Savani
					TLI	EPA 200.7	AL	6/16/2011	Ethel Suico
					TLI	EPA 200.7	B	6/16/2011	Ethel Suico
					TLI	EPA 200.7	FE	6/16/2011	Ethel Suico
					TLI	EPA 200.8	AS	6/14/2011	Katia Kiarashpoor

TABLE 8

Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)

Monitoring Information

Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-312	C.Knight	6/7/2011	2:11:00 PM	TLI	EPA 200.8	BA	6/16/2011	Katia Kiarashpoor
					TLI	EPA 200.8	CR	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	CU	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MO	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	NI	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	PB	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	SB	6/14/2011	Katia Kiarashpoor
					TLI	EPA 200.8	ZN	6/16/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	6/8/2011	Sonya Bersudsky
					TLI	EPA 300.0	FL	6/10/2011	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	6/8/2011	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	6/10/2011	Giawad Ghenniwa
					FIELD	HACH	PH	6/7/2011	C.Knight
					TLI	SM2130B	TRB	6/8/2011	Gautam Savani
					TLI	SM2540C	TDS	6/8/2011	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	6/8/2011	Maria Mangarova
					TLI	SM4500NO2B	NO2N	6/9/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-313	Ron Phelps	6/14/2011	2:00:00 PM	TLI	EPA 120.1	SC	6/15/2011	Gautam Savani
					TLI	EPA 200.8	CR	6/22/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	6/22/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	6/16/2011	Sonya Bersudsky
					FIELD	HACH	PH	6/14/2011	Ron Phelps
					TLI	SM2130B	TRB	6/15/2011	Gautam Savani
					TLI	SM2540C	TDS	6/15/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-314	Ron Phelps	6/21/2011	2:00:00 PM	TLI	EPA 120.1	SC	6/22/2011	Gautam Savani
					TLI	EPA 200.8	CR	6/24/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	6/24/2011	Katia Kiarashpoor
					TLI	EPA 218.6	CR6	6/27/2011	Sonya Bersudsky
					FIELD	HACH	PH	6/21/2011	Ron Phelps
					TLI	SM2130B	TRB	6/22/2011	Gautam Savani
					TLI	SM2540C	TDS	6/23/2011	Jenny Tankunakorn
SC-700B	SC-700B-WDR-315	Ron Phelps	6/28/2011	6:00:00 AM	TLI	EPA 120.1	SC	6/29/2011	Gautam Savani
					TLI	EPA 200.8	CR	7/1/2011	Katia Kiarashpoor
					TLI	EPA 200.8	MN	7/1/2011	Katia Kiarashpoor

TABLE 8

Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)

Monitoring Information

Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-315	Ron Phelps	6/28/2011	6:00:00 AM	TLI	EPA 218.6	CR6	6/30/2011	Sonya Bersudsky
					FIELD	HACH	PH	6/28/2011	Ron Phelps
					TLI	SM2130B	TRB	6/29/2011	Gautam Savani
					TLI	SM2540C	TDS	6/28/2011	Jenny Tankunakorn
SC-701	SC-701-WDR-303	C.Knight	4/5/2011	2:46:00 PM	TLI	EPA 120.1	SC	4/7/2011	Iordan Stavrev
					TLI	EPA 200.7	BE	4/28/2011	Ethel Suico
					TLI	EPA 200.7	MO	4/28/2011	Ethel Suico
					TLI	EPA 200.7	ZN	4/28/2011	Ethel Suico
					TLI	EPA 200.8	AG	5/5/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	AS	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	BA	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	CD	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	CO	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	CR	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	CU	4/28/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	HG	4/27/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	MN	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	NI	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	PB	5/5/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	SB	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	SE	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	TL	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 200.8	V	4/22/2011	Katia Kiarashpoor/Hope Trinidad/Maksim Gorbu
					TLI	EPA 218.6	CR6	4/6/2011	Sonya Bersudsky
					TLI	EPA 300.0	FL	4/6/2011	Giawad Ghenniwa
					FIELD	HACH	PH	4/5/2011	C.Knight
					TLI	SM2540C	TDS	4/8/2011	Jenny Tankunakorn
Phase Separator	SC-Sludge-WDR-303	C.Knight	4/5/2011	1:45:00 PM	TLI	EPA 300.0	FL	4/6/2011	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	4/6/2011	Giawad Ghenniwa
					TLI	EPA 6010B	AG	4/13/2011	Ethel Suico
					TLI	EPA 6010B	AS	4/27/2011	Ethel Suico
					TLI	EPA 6010B	BA	4/13/2011	Ethel Suico
					TLI	EPA 6010B	BE	4/13/2011	Ethel Suico
					TLI	EPA 6010B	CD	4/13/2011	Ethel Suico
					TLI	EPA 6010B	CO	4/13/2011	Ethel Suico
					TLI	EPA 6010B	CR	4/13/2011	Ethel Suico

TABLE 8

Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)

Monitoring Information

Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
Phase Separator	SC-Sludge-WDR-303	C.Knight	4/5/2011	1:45:00 PM	TLI	EPA 6010B	CU	4/13/2011	Ethel Suico
					TLI	EPA 6010B	MN	4/13/2011	Ethel Suico
					TLI	EPA 6010B	MO	4/13/2011	Ethel Suico
					TLI	EPA 6010B	NI	4/27/2011	Ethel Suico
					TLI	EPA 6010B	PB	4/26/2011	Ethel Suico
					TLI	EPA 6010B	SB	4/27/2011	Ethel Suico
					TLI	EPA 6010B	SE	4/13/2011	Ethel Suico
					TLI	EPA 6010B	TL	4/13/2011	Ethel Suico
					TLI	EPA 6010B	V	4/13/2011	Ethel Suico
					TLI	EPA 6010B	ZN	4/13/2011	Ethel Suico
					TLI	SM2540B	MOIST	4/11/2011	Gautam Savani
					TLI	SW 6020A	HG	4/13/2011	Katia Kiarashpoor
					TLI	SW 7199	CR6	4/21/2011	Sonya Bersudsky

TABLE 8

Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)

Monitoring Information

*Second Quarter 2011 Monitoring Report for Interim Measure No.3 Groundwater Treatment System***NOTES:**

SC-700B = Sampling location for all effluent samples is tap on pipe downstream from tank T-700 to injection well IW-2 (see attached P&ID TP-PR-10-10-04).

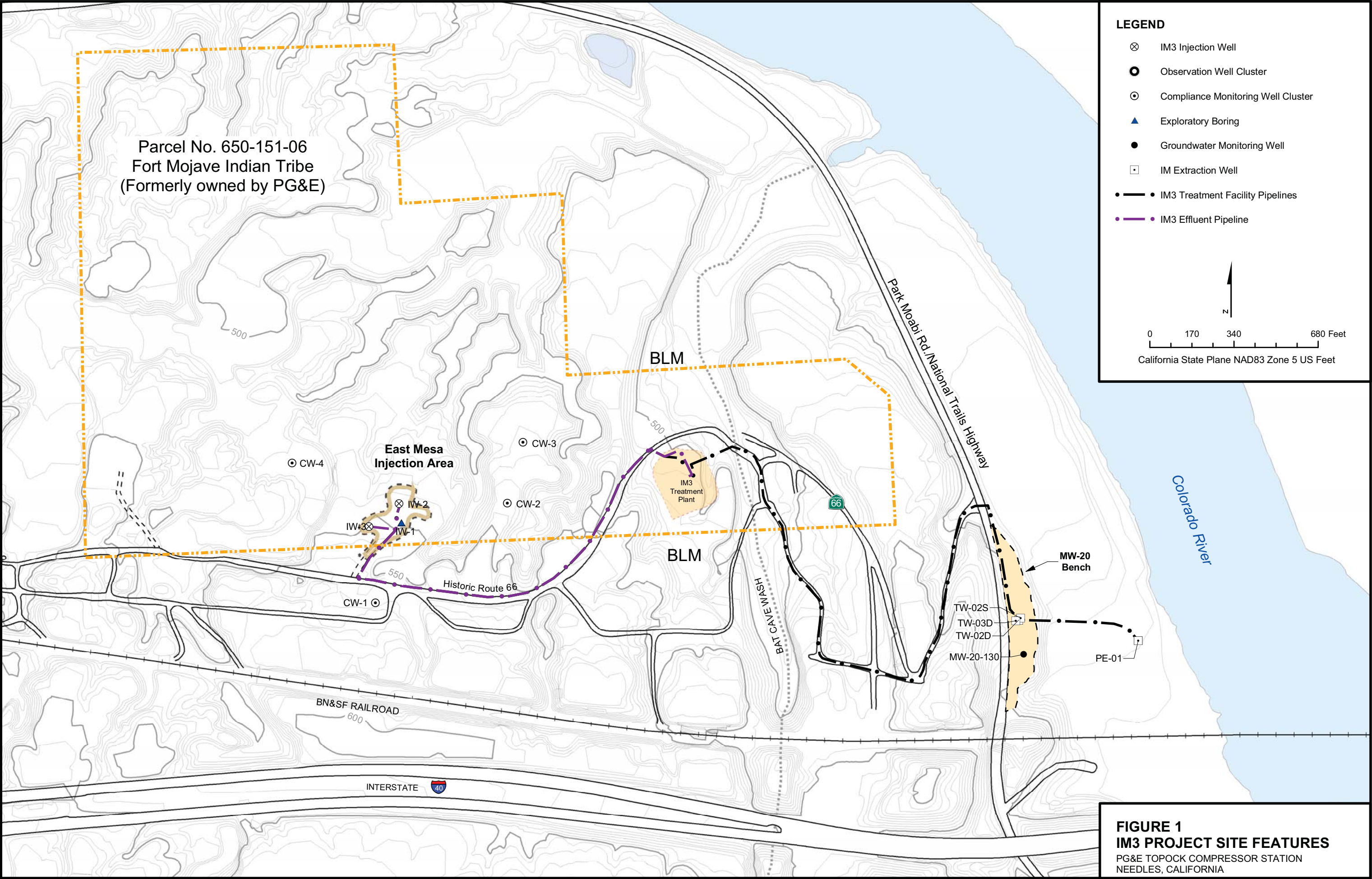
SC-100B = Sampling location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).

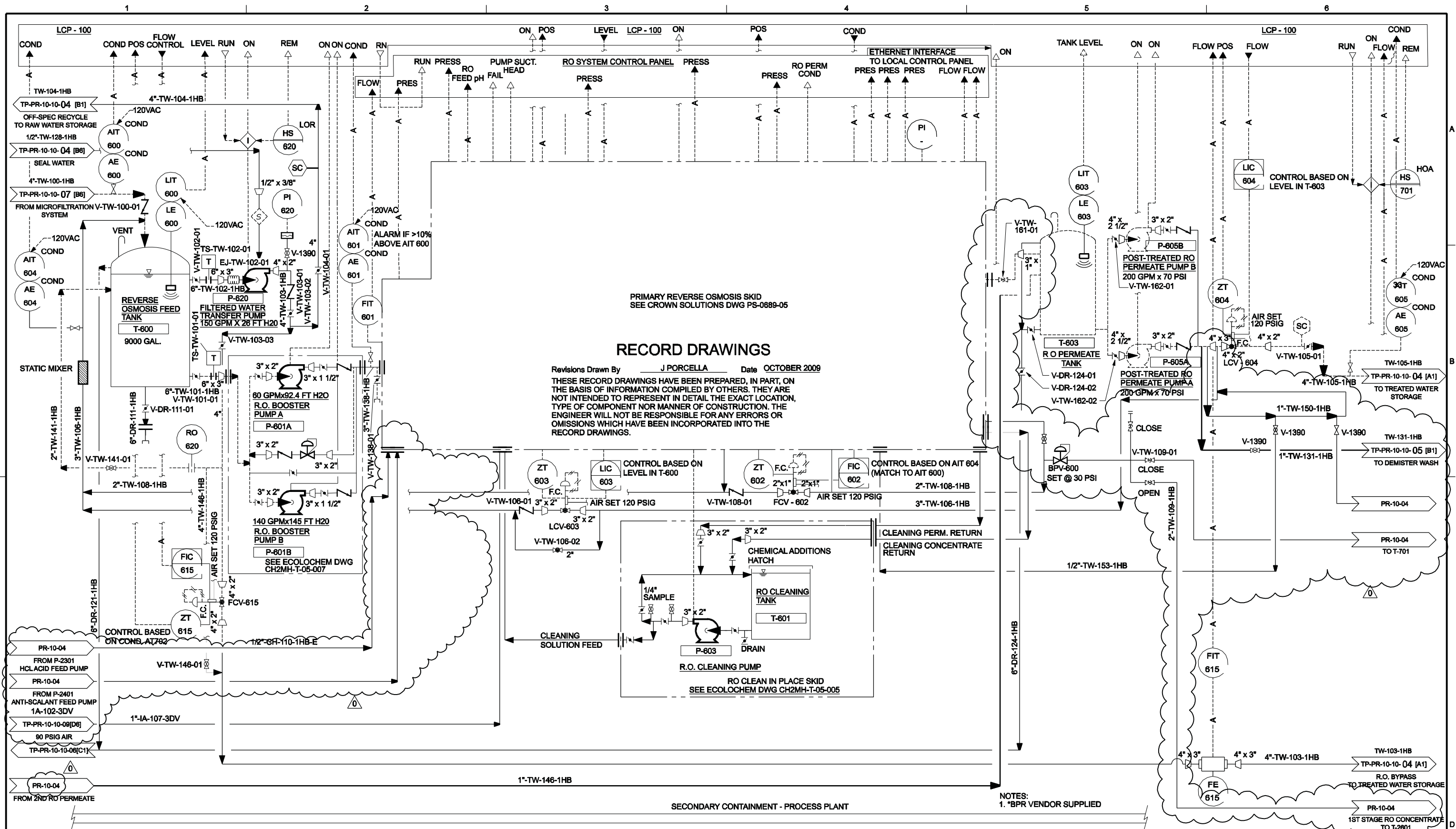
SC-701 = Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).

Prior to April 11, 2007 the analytical methods listed in the 40 CFR Part 136 for pH and TDS were E150.1 and E160.1, respectively. Per EPA and Department of Health Services guidelines, the analytical methods listed in the current 40 CFR Part 136 have changed to SM4500-H B and SM2540C as shown on the table.

ALKB =	alkalinity, bicarb as CaCO ₃	MO =	molybdenum
ALKC =	alkalinity, carb as CaCO ₃	MOIST =	moisture
AL =	aluminum	NH ₃ N =	ammonia (as N)
Ag =	silver	NI =	nickel
AS =	arsenic	NO ₂ N =	nitrite (as N)
B =	boron	NO ₃ N =	nitrate (as N)
BA =	barium	PB =	lead
BE =	beryllium	PH =	pH
CD =	cadmium	SB =	antimony
CO =	cobalt	SC =	specific conductance
CR =	chromium	SE =	selenium
CR6 =	hexavalent chromium	SO ₄ =	sulfate
CU =	copper	TDS =	total dissolved solids
FE =	iron	TL =	thallium
FETD =	iron, dissolved	TLI =	Truesdail Laboratories, Inc.
FL =	fluoride	TRB =	turbidity
HG =	mercury	V =	vanadium
MN =	manganese	ZN =	zinc
MND =	manganese, dissolved		

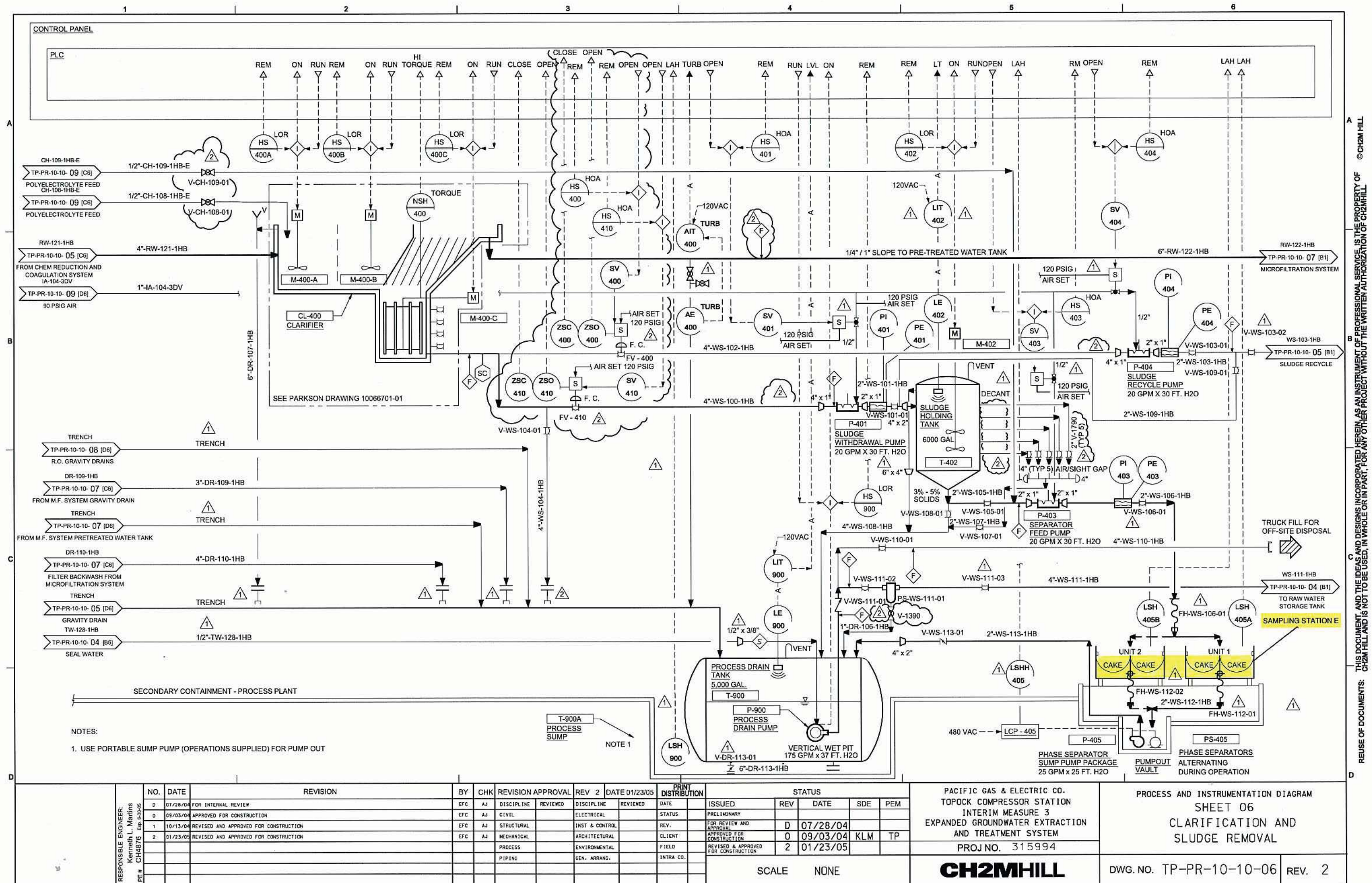
Figures



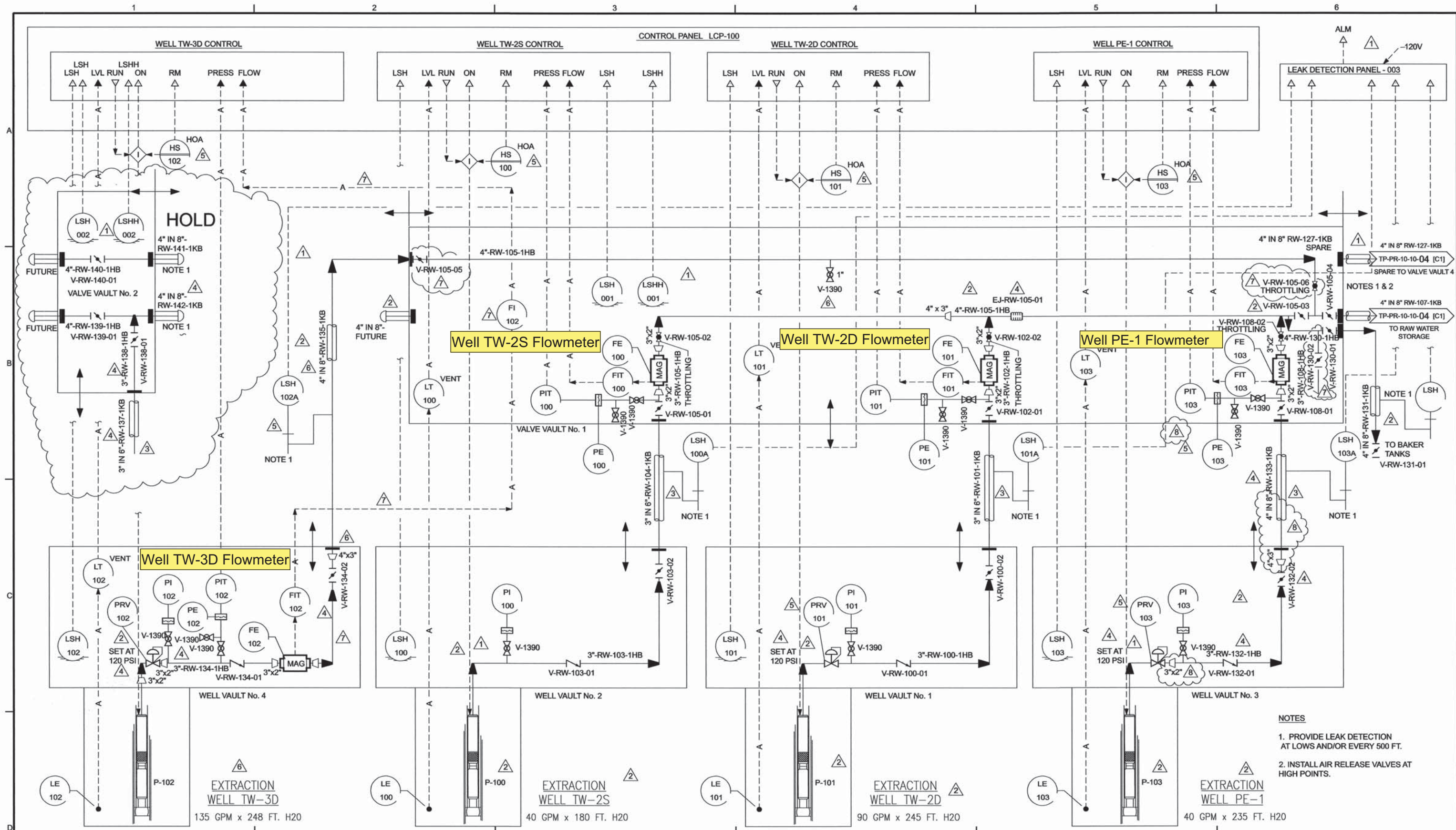


** ORIGINALLY STAMPED AND SIGNED BY: JOHN PORCELLA CALIFORNIA PE NO. C70145 ON 04-01-2009 **	RESPONSIBLE ENGINEER: John Porcella C70145 Exp. 8-30-10 PE#	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL		REV 0	DATE 10/02/09	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 PLANT PERFORMANCE IMPROVEMENTS	PROCESS AND INSTRUMENTATION DIAGRAM REVERSE OSMOSIS SYSTEM SHEET ONE OF TWO			
		A	2/12/09	INTERNAL REVIEW			DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE	ISSUED	REV	DATE	SDE	PEM					
		B	2/12/09	CLIENT REVIEW			CIVIL	SJ	ELECTRICAL	FH	STATUS	PRELIMINARY	A	2/12/09	JP	JP					
		C	4/01/09	FOR REVIEW AND APPROVAL	JR	JP	STRUCTURAL		INST & CONTROL	JG	REV.	FOR REVIEW AND APPROVAL	C	4/01/09	JP	JP					
		D	11/17/09	FINAL RECORD ISSUE	JR	JP	MECHANICAL	SJ	ARCHITECTURAL		CLIENT	APPROVED FOR CONSTRUCTION									
									PROCESS	DF	ENVIRONMENTAL		FIELD	REVISED & APPROVED FOR CONSTRUCTION	0	10/02/09	JP	JP	PROJ NO. 362032		
									PIPING	SJ	GEN. ARRANG.	SJ	INTRA CO.								

SCALE		NONE		CH2MHILL	DWG. NO.	PR-10-03	REV.	0
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- NOTES**
1. PROVIDE LEAK DETECTION AT LOWS AND/OR EVERY 500 FT.
 2. INSTALL AIR RELEASE VALVES AT HIGH POINTS.



RESPONSIBLE ENGINEER:
Kenneth L. Martins
PE # CH4876 Exp. 6-30-05

NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 8	DATE 12/06/05	PRINT DISTRIBUTION	STATUS
8	12/07/05	REMOVED PE-1 HOLDS	JBW	SDH	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL	—	ELECTRICAL	—	STATUS
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL	—	INST. & CONTROL	—	REV.
3	03/16/05	DELETED NOTES, APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL	—	ARCHITECTURAL	—	CLIENT
4	07/20/05	RELIEF VALVE SETTINGS, WELL PE-1 LINE TAGS, HOLDS REMOVED, APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS	—	ENVIRONMENTAL	—	FIELD
5	09/27/05	FINAL RECORD ISSUE	EFC	AJ	PIPING	—	GEN. ARRANG.	—	INTRA CD.
6	10/06/05	REVISED FINAL RECORD - ADDED TW-3D	EFC	AJ	—	—	—	—	—
7	10/19/05	REVISED AS NOTED	EFC	AJ	—	—	—	—	—

SCALE NONE

PACIFIC GAS & ELECTRIC CO.
TOPOCK COMPRESSOR STATION
INTERIM MEASURE 3
EXPANDED GROUNDWATER EXTRACTION
AND TREATMENT SYSTEM
PROJ. NO. 315994

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 03
EXTRACTION WELLS
PE-1, TW-2D, TW-2S AND TW-3D

DWG. NO. TP-PR-10-10-03 REV. 8

FILENAME: tpr101003.dwg

PLOT DATE: 19-OCT-2005

PLOT TIME:

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Appendix A
Semiannual Operations and Maintenance Log,
January 1, 2011 through June 30, 2011

APPENDIX A

Semiannual Operations and Maintenance Log, January 1, 2011 through June 30, 2011

Downtime is defined as any periods when all extraction wells are not operating, so that no groundwater is being extracted and piped into IM3 as influent. Periods of planned and unplanned extraction system downtime are summarized here. The times shown are in Pacific Standard Time to be consistent with other data collected at the site.

January 2011

- **January 5, 2011 (planned):** The extraction well system was offline from 11:26 a.m. to 11:32 a.m., 11:36 a.m. to 11:38 a.m., 11:44 a.m. to 11:48 a.m., 11:52 a.m. to 11:56 a.m., and 2:08 p.m. to 2:12 p.m. due to critical alarm and leak detection system testing. Extraction system downtime was 20 minutes.
- **January 10, 2011 (unplanned):** The extraction well system was offline from 2:32 p.m. to 5:50 p.m. due to cleaning of blockage in T301 pipeline. Extraction system downtime was 3 hours and 18 minutes.
- **January 17, 2011 (unplanned):** The extraction well system was offline from 8:12 p.m. to 9:48 p.m. due to cleaning of blockages in the oxidation system. Extraction system downtime was 1 hour and 36 minutes.
- **January 18, 2011 (planned):** The extraction well system was offline from 6:22 a.m. to 3:58 p.m. and 5:34 p.m. to 6:56 p.m. due to monthly scheduled plant maintenance. Extraction system downtime was 10 hours and 58 minutes.
- **January 26, 2011 (unplanned):** The extraction well system was offline from 9:38 a.m. to 9:42 a.m. due to City of Needles Electric Department power imbalance that shut down extraction wells. Extraction system downtime was 4 minutes.

February 2011

- **February 4, 2011 (planned):** The extraction well system was offline from 10:56 a.m. to 11:14 a.m., 11:16 a.m. to 11:18 a.m., 12:04 p.m. to 12:06 p.m., 12:12 p.m. to 12:14 p.m. and 12:38 p.m. to 12:42 p.m. due to critical alarm and leak detection system testing. Extraction system downtime was 28 minutes.
- **February 9, 2011 (planned):** The extraction well system was offline from 10:38 a.m. to 12:58 p.m. due to monthly scheduled maintenance. Extraction system downtime was 2 hours and 20 minutes.
- **February 11, 2011 (unplanned):** The extraction well system was offline from 2:26 p.m. to 2:28 p.m. due replacement of meter AIT 201. Extraction system downtime was 2 minutes.

- **February 15, 2011 (planned):** The extraction well system was offline from 12:58 p.m. to 1:04 p.m. due to shut-off of the circuit breaker to vault alarms during infrared testing. Extraction system downtime was 6 minutes.
- **February 23, 2011 (unplanned):** The extraction well system was offline from 2:36 a.m. to 7:02 a.m. due to polymer pump repair. Extraction system downtime was 4 hours and 26 minutes.

March 2011

- **March 2, 2011 (planned):** The extraction well system was offline from 12:58 p.m. to 1:32 p.m. and 2:00 p.m. to 3:06 p.m. due to microfilter maintenance. Extraction system downtime was 1 hour and 40 minutes.
- **March 7, 2011 (planned):** The extraction well system was offline from 7:56 a.m. to 7:58 a.m., 8:06 a.m. to 8:08 a.m., 8:12 a.m. to 8:18 a.m., 8:20 a.m. 8:22 a.m. and 8:24 a.m. to 8:26 a.m. due to critical alarm and leak detection system testing. Extraction system downtime was 14 minutes.
- **March 30, 2011 (planned):** The extraction well system was offline from 7:16 a.m. to 2:50 p.m. due to monthly scheduled maintenance. Extraction system downtime was 7 hours and 34 minutes.
- **March 31, 2011 (planned):** The extraction well system was offline from 10:22 a.m. to 11:56 a.m. due to blower and microfilter maintenance. Extraction system downtime was 1 hour and 34 minutes.
- **March 31, 2011 (planned):** The extraction well system was offline from 12:14 p.m. to 12:56 p.m. due to start up compliance sampling. Extraction system downtime was 42 minutes.

April 2011

- **April 13, 2011 (planned):** The extraction well system was offline from 4:10 p.m. to 4:44 p.m. due to microfilter maintenance. Extraction system downtime was 34 minutes.
- **April 25-29, 2011 (planned):** The extraction well system was offline from 5:46 a.m. on April 25, 2011 to 12:54 p.m. on April 28, 2011, from 1:24 p.m. on April 28, 2011 to 5:30 a.m. on April 29, 2011, and from 6:04 a.m. to 8:36 a.m. on April 29, 2011 for the biannual plant maintenance outage. Extraction system downtime was 4 days, 1 hour and 46 minutes.

May 2011

- **May 3, 2011 (planned):** The extraction well system was offline from 1:44 p.m. to 3:10 p.m. due to microfilter maintenance. Extraction system downtime was 1 hour and 26 minutes.

- **May 27, 2011 (planned):** The extraction well system was offline from 9:06 a.m. to 9:16 a.m. due to City of Needles Electric Department personnel on-site to change taps on power system. Extraction system downtime was 10 minutes.
- **May 28, 2011 (unplanned):** The extraction well system was offline from 12:20 p.m. to 12:56 p.m. due to City of Needles Electric Department power imbalance that shut down extraction wells. Extraction system downtime was 36 minutes.
- **May 28, 2011 (planned):** The extraction well system was offline from 4:54 p.m. to 5:14 p.m. due to generator refueling. Extraction system downtime was 20 minutes.
- **May 29, 2011 (planned):** The extraction well system was offline from 5:40 a.m. to 5:46 a.m. and 6:00 a.m. to 6:02 a.m. due to an unsuccessful attempt from City of Needles Electric Department to switch to city power from generator power. Extraction system downtime was 8 minutes.
- **May 30, 2011 (planned):** The extraction well system was offline from 8:04 a.m. to 8:08 a.m. due to City of Needles Electric Department personnel on-site to switch to city power from generator power. Extraction system downtime was 4 minutes.

June 2011

- **June 2, 2011 (planned):** The extraction well system was offline from 10:04 a.m. to 10:06 a.m. due to permanent alarm and leak detection system testing. Extraction system downtime was 2 minutes.
- **June 4, 2011 (unplanned):** The extraction well system was offline from 12:40 p.m. to 12:46 p.m. due to City of Needles Electric Department power imbalance that shut down extraction wells. Extraction system downtime was 6 minutes.
- **June 8, 2011 (planned):** The extraction well system was offline from 10:00 a.m. to 12:12 p.m. due to microfilter maintenance. Extraction system downtime was 2 hours and 12 minutes.
- **June 22, 2011 (unplanned):** The extraction well system was offline from 2:32 p.m. to 2:42 p.m. due to City of Needles Electric Department power imbalance that shut down extraction wells. Extraction system downtime was 10 minutes.
- **June 23, 2011 (unplanned):** The extraction well system was offline from 8:54 p.m. to 8:56 a.m. The cause is unknown. Extraction system downtime was 2 minutes.
- **June 28-30, 2011 (planned):** The extraction well system was offline from 8:42 a.m. on June 28, 2011 to 1:10 p.m. on June 30, 2011 due to monthly scheduled plant maintenance. Extraction system downtime was 2 days, 4 hours and 28 minutes.

Appendix B
Daily Volumes of Groundwater Treated

January 2011 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
January	1	2011	--	--	156,450	36,895	193,344	24	186,565	186,589	1,606
January	2	2011	--	--	156,315	37,229	193,544	21	189,484	189,505	1,598
January	3	2011	--	--	156,030	37,550	193,580	19	185,310	185,329	1,602
January	4	2011	--	--	156,212	37,453	193,665	21	186,558	186,579	2,377
January	5	2011	--	--	151,958	36,330	188,288	15,712	172,023	187,735	1,601
January	6	2011	--	--	156,688	36,419	193,107	15	182,201	182,215	1,596
January	7	2011	--	--	156,608	36,449	193,056	4	188,494	188,498	1,668
January	8	2011	--	--	155,907	37,446	193,353	10	188,762	188,772	1,716
January	9	2011	--	--	156,582	36,368	192,951	3	188,754	188,757	1,601
January	10	2011	--	--	134,022	31,050	165,072	30	154,293	154,324	1,668
January	11	2011	--	--	156,839	36,917	193,756	15	183,912	183,927	2,616
January	12	2011	--	--	157,884	36,764	194,647	67,473	122,152	189,625	1,601
January	13	2011	--	--	151,643	36,055	187,698	82,226	104,895	187,121	3,404
January	14	2011	--	--	155,814	36,130	191,944	1	185,398	185,398	1,669
January	15	2011	--	--	155,481	36,536	192,016	1	182,325	182,325	2,588
January	16	2011	--	--	155,876	36,090	191,966	5	184,647	184,653	2,267
January	17	2011	--	--	144,496	34,269	178,765	28	179,072	179,100	1,660
January	18	2011	--	--	83,137	20,209	103,346	11	95,237	95,247	1,662
January	19	2011	--	--	154,763	37,161	191,924	17	179,892	179,909	1,587
January	20	2011	--	--	155,007	36,851	191,859	2,180	188,619	190,799	1,880
January	21	2011	--	--	155,643	37,306	192,950	32	190,774	190,806	3,174
January	22	2011	--	--	156,294	37,175	193,470	12	188,745	188,757	6,640
January	23	2011	--	--	156,246	37,114	193,360	14	185,646	185,660	3,315
January	24	2011	--	--	156,425	36,965	193,390	4	184,994	184,998	3,313
January	25	2011	--	--	146,374	37,352	183,726	25	179,817	179,842	3,330
January	26	2011	--	--	155,526	37,207	192,733	70,826	115,168	185,995	3,226
January	27	2011	--	--	156,391	36,914	193,305	186,696	225	186,921	3,446
January	28	2011	--	--	156,539	36,709	193,248	184,463	252	184,715	6,482
January	29	2011	--	--	156,366	37,084	193,449	186,289	216	186,506	3,324
January	30	2011	--	--	156,248	37,269	193,517	184,560	229	184,790	3,320
January	31	2011	--	--	156,351	37,033	193,385	192,357	195	192,551	6,432
Total Monthly Volumes (gal)			0	0	4,716,116	1,118,297	5,834,413	1,173,092	4,474,855	5,647,947	83,969
Average Pump/Injection Rates (gpm)			0.0	0.0	105.6	25.1	130.7	26.3	100.2	126.5	1.9

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW 3D and PE 1 were operated during January 2011 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime.

b. Extraction wells TW 2D and TW-2S were not operated during January 2011.

c. Effluent was discharged into injection wells IW-02 and IW-03.

d. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during January 2011 is approximately 1.76 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

February 2011 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
February	1	2011	--	--	156,557	36,807	193,364	189,639	221	189,860	3,314
February	2	2011	--	--	156,947	36,661	193,608	178,586	265	178,851	3,453
February	3	2011	--	--	157,060	36,575	193,636	191,832	124	191,956	6,633
February	4	2011	--	--	151,921	35,968	187,889	182,388	2,328	184,716	3,182
February	5	2011	--	--	156,846	36,659	193,505	182,401	302	182,702	6,663
February	6	2011	--	--	156,821	36,611	193,432	185,990	269	186,259	3,317
February	7	2011	--	--	156,863	36,559	193,421	187,685	263	187,948	3,326
February	8	2011	--	--	156,671	36,826	193,497	187,600	255	187,855	3,185
February	9	2011	--	--	140,870	33,352	174,223	161,112	2,777	163,888	3,329
February	10	2011	--	--	156,248	37,381	193,630	106,639	84,112	190,751	3,304
February	11	2011	--	--	155,796	37,211	193,007	277	191,515	191,792	6,352
February	12	2011	--	--	156,339	37,308	193,647	21	185,670	185,691	3,045
February	13	2011	--	--	156,493	37,077	193,570	11	187,883	187,894	3,043
February	14	2011	--	--	156,467	37,171	193,638	9	189,486	189,494	3,041
February	15	2011	--	--	155,557	37,072	192,629	20	187,781	187,801	3,173
February	16	2011	--	--	156,388	37,247	193,636	2,155	177,282	179,436	2,970
February	17	2011	--	--	156,448	37,227	193,675	4	193,458	193,462	3,047
February	18	2011	--	--	156,582	37,061	193,643	26	193,056	193,082	3,176
February	19	2011	--	--	156,682	37,061	193,744	7	187,291	187,299	6,206
February	20	2011	--	--	156,770	36,747	193,517	11	190,834	190,846	3,049
February	21	2011	--	--	156,669	36,909	193,578	17	188,449	188,466	3,188
February	22	2011	--	--	156,181	36,981	193,161	7	187,009	187,015	3,036
February	23	2011	--	--	126,530	30,813	157,343	78,306	73,547	151,853	3,039
February	24	2011	--	--	155,853	37,608	193,461	189,966	897	190,862	3,169
February	25	2011	--	--	155,893	37,564	193,457	190,207	494	190,701	2,998
February	26	2011	--	--	155,962	37,589	193,551	188,743	475	189,217	3,190
February	27	2011	--	--	155,754	38,011	193,766	189,260	456	189,716	3,065
February	28	2011	--	--	155,986	37,642	193,628	188,747	544	189,291	3,059
Total Monthly Volumes (gal)			0	0	4,329,155	1,027,699	5,356,854	2,781,667	2,427,040	5,208,707	101,549
Average Pump/Injection Rates (gpm)			0.0	0.0	107.4	25.5	132.9	69.0	60.2	129.2	2.5

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW 3D and PE 1 were operated during February 2011 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime.

Extraction wells TW 2D and TW-2S were not operated during February 2011.

b. Effluent was discharged into injection wells IW-02 and IW-03.

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during February 2011 is approximately 0.87 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

March 2011 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
March	1	2011	--	--	155,860	37,889	193,749	187,141	485	187,626	6,082
March	2	2011	--	--	143,583	35,633	179,216	172,465	3,795	176,260	3,039
March	3	2011	--	--	156,033	37,618	193,651	193,335	12	193,347	3,033
March	4	2011	--	--	156,053	37,637	193,690	186,039	12	186,051	3,160
March	5	2011	--	--	155,475	38,492	193,966	187,404	12	187,416	3,153
March	6	2011	--	--	155,849	37,901	193,750	191,416	15	191,430	3,018
March	7	2011	--	--	153,169	36,717	189,886	112,548	74,793	187,341	3,019
March	8	2011	--	--	156,231	37,393	193,624	22	184,545	184,566	3,036
March	9	2011	--	--	155,761	38,080	193,841	18	186,946	186,964	3,023
March	10	2011	--	--	156,121	37,499	193,620	10	187,201	187,211	3,017
March	11	2011	--	--	156,350	37,106	193,456	1	187,260	187,261	3,016
March	12	2011	--	--	155,556	38,241	193,797	2	187,267	187,268	3,018
March	13	2011	--	--	156,278	37,399	193,677	12,931	180,103	193,035	2,906
March	14	2011	--	--	156,257	37,422	193,678	5,458	174,455	179,914	3,165
March	15	2011	--	--	156,325	37,225	193,549	5,745	184,085	189,831	3,159
March	16	2011	--	--	156,487	36,940	193,427	11,044	180,332	191,376	3,174
March	17	2011	--	--	156,642	36,771	193,413	23	190,613	190,636	3,168
March	18	2011	--	--	156,139	37,617	193,755	21	185,867	185,888	3,165
March	19	2011	--	--	156,164	37,586	193,749	54,863	134,152	189,015	6,204
March	20	2011	--	--	156,144	37,655	193,799	9,497	177,361	186,859	3,155
March	21	2011	--	--	155,965	38,146	194,111	14	186,444	186,457	3,156
March	22	2011	--	--	155,948	38,121	194,068	17	188,958	188,976	3,039
March	23	2011	--	--	155,847	38,233	194,080	14	186,796	186,811	3,154
March	24	2011	--	--	155,921	37,962	193,883	8	190,699	190,707	3,151
March	25	2011	--	--	155,807	38,179	193,986	34	190,501	190,534	3,303
March	26	2011	--	--	155,682	38,436	194,118	3	185,162	185,166	3,017
March	27	2011	--	--	155,850	38,168	194,018	19	190,187	190,206	3,161
March	28	2011	--	--	155,552	38,494	194,046	25	184,561	184,586	3,003
March	29	2011	--	--	155,203	39,218	194,420	76,581	112,442	189,023	3,113
March	30	2011	--	--	105,897	26,528	132,425	133,427	14	133,441	4
March	31	2011	--	--	139,804	34,544	174,348	172,198	13	172,211	3,170
Total Monthly Volumes (gal)			0	0	4,753,953	1,154,848	5,908,801	1,712,322	4,035,089	5,747,411	98,980
Average Pump/Injection Rates (gpm)			0.0	0.0	106.5	25.9	132.4	38.4	90.4	128.8	2.2

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW 3D and PE 1 were operated during March 2011 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW 2D and TW-2S were not operated during March 2011.

b. Effluent was discharged into injection wells IW-02 and IW-03.

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during March 2011 is approximately 1.06 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

April 2011 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Extraction Well System							Injection Well System			RO Brine	
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
April	1	2011	--	--	153,785	37,784	191,569	186,275	1,568	187,842	3,147
April	2	2011	--	--	155,421	38,241	193,662	188,536	12	188,548	3,038
April	3	2011	--	--	155,813	37,631	193,444	189,908	16	189,924	3,174
April	4	2011	--	--	155,806	37,713	193,519	188,223	13	188,236	3,044
April	5	2011	--	--	155,684	37,912	193,596	189,610	20	189,629	3,125
April	6	2011	--	--	154,991	38,937	193,928	195,057	15	195,072	3,263
April	7	2011	--	--	155,317	38,378	193,695	191,541	1,038	192,579	3,312
April	8	2011	--	--	155,671	38,062	193,733	192,703	8	192,710	3,184
April	9	2011	--	--	155,818	38,011	193,829	189,681	9	189,690	3,319
April	10	2011	--	--	155,662	38,211	193,873	189,727	20	189,747	3,319
April	11	2011	--	--	155,183	38,876	194,059	188,626	20	188,646	3,179
April	12	2011	--	--	155,513	38,343	193,856	107,424	83,989	191,413	3,154
April	13	2011	--	--	151,038	37,499	188,537	83,341	98,629	181,970	3,172
April	14	2011	--	--	155,296	38,374	193,669	191,231	11	191,242	3,295
April	15	2011	--	--	155,400	38,101	193,501	191,663	15	191,679	3,130
April	16	2011	--	--	155,352	38,133	193,486	184,943	12	184,955	3,165
April	17	2011	--	--	155,485	37,892	193,378	194,747	23	194,770	3,039
April	18	2011	--	--	155,454	37,967	193,422	187,224	24	187,248	3,129
April	19	2011	--	--	155,236	38,325	193,560	188,194	28	188,221	3,290
April	20	2011	--	--	155,472	37,983	193,454	108,800	80,669	189,469	3,259
April	21	2011	--	--	155,475	37,914	193,389	14	192,855	192,868	3,182
April	22	2011	--	--	155,202	38,303	193,505	9	186,003	186,012	3,153
April	23	2011	--	--	155,419	38,000	193,420	5	182,728	182,733	3,235
April	24	2011	--	--	155,353	38,119	193,472	19	185,798	185,817	3,160
April	25	2011	--	--	37,151	9,460	46,611	19	52,927	52,945	5
April	26	2011	--	--	8	6	15	3	18	21	6
April	27	2011	--	--	4	3	7	3	17	20	7
April	28	2011	--	--	2,871	821	3,692	2	23	25	4
April	29	2011	--	--	102,065	25,545	127,611	11	118,103	118,114	3,169
April	30	2011	--	--	154,748	38,402	193,150	5	191,283	191,288	2,927
Total Monthly Volumes (gal)			0	0	4,021,693	988,946	5,010,639	3,527,543	1,375,891	4,903,434	82,585
Average Pump/Injection Rates (gpm)			0.0	0.0	93.1	22.9	116.0	81.7	31.8	113.5	1.9

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW 3D and PE 1 were operated during April 2011 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW 2D and TW-2S were not operated during April 2011.

b. Effluent was discharged into injection wells IW-02 and IW-03.

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during April 2011 is approximately 0.49 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

May 2011 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Extraction Well System							Injection Well System			RO Brine	
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
May	1	2011	--	--	154,552	38,813	193,365	7	194,911	194,918	3,195
May	2	2011	--	--	154,810	38,478	193,288	8	184,427	184,436	3,269
May	3	2011	--	--	144,670	36,669	181,339	15	172,871	172,886	3,184
May	4	2011	--	--	151,619	38,031	189,650	11	190,751	190,762	2,975
May	5	2011	--	--	155,178	37,831	193,009	88,442	97,185	185,627	3,156
May	6	2011	--	--	154,509	38,814	193,322	192,725	22	192,747	3,161
May	7	2011	--	--	155,202	37,881	193,083	192,356	23	192,379	6,208
May	8	2011	--	--	155,262	37,821	193,083	186,832	19	186,851	3,176
May	9	2011	--	--	154,862	38,366	193,228	188,009	23	188,032	1,466
May	10	2011	--	--	155,058	38,124	193,182	188,389	11	188,400	1,714
May	11	2011	--	--	154,078	39,384	193,462	186,839	20	186,859	3,123
May	12	2011	--	--	154,139	39,210	193,349	189,385	15	189,400	3,232
May	13	2011	--	--	154,367	38,850	193,217	189,350	29	189,379	3,307
May	14	2011	--	--	154,524	38,594	193,118	190,252	24	190,276	3,165
May	15	2011	--	--	154,863	38,155	193,017	187,776	17	187,793	3,121
May	16	2011	--	--	154,935	38,027	192,962	186,869	18	186,887	3,152
May	17	2011	--	--	154,783	38,227	193,010	188,798	19	188,817	3,185
May	18	2011	--	--	154,803	38,105	192,907	110,002	80,856	190,857	3,157
May	19	2011	--	--	155,017	37,526	192,543	30	191,763	191,794	3,145
May	20	2011	--	--	155,332	37,082	192,414	134,629	51,622	186,251	3,143
May	21	2011	--	--	154,915	37,719	192,634	191,278	20	191,297	3,069
May	22	2011	--	--	155,228	37,290	192,519	186,910	21	186,931	3,043
May	23	2011	--	--	155,302	37,242	192,544	189,461	16	189,477	3,160
May	24	2011	--	--	154,323	38,604	192,927	189,769	19	189,788	5
May	25	2011	--	--	154,494	38,286	192,780	149,729	32,354	182,084	3,026
May	26	2011	--	--	154,603	38,099	192,702	190,723	24	190,748	3,610
May	27	2011	--	--	153,481	37,007	190,488	191,151	32	191,183	3,012
May	28	2011	--	--	147,583	36,354	183,937	171,013	19	171,032	3,148
May	29	2011	--	--	153,228	37,465	190,693	191,704	28	191,732	3,189
May	30	2011	--	--	153,806	37,860	191,666	188,456	22	188,479	2,885
May	31	2011	--	--	153,777	38,806	192,583	187,462	16	187,478	3,033
Total Monthly Volumes (gal)			0	0	4,773,302	1,178,718	5,952,020	4,628,381	1,197,197	5,825,578	94,413
Average Pump/Injection Rates (gpm)			0.0	0.0	106.9	26.4	133.3	103.7	26.8	130.5	2.1

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW 3D and PE 1 were operated during May 2011 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW 2D and TW-2S were not operated during May 2011.

b. Effluent was discharged into injection wells IW-02 and IW-03.

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during May 2011 is approximately 0.54 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

June 2011 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Extraction Well System							Injection Well System			RO Brine	
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
June	1	2011	--	--	154,239	38,212	192,451	189,591	31	189,622	3,020
June	2	2011	--	--	151,528	38,453	189,981	186,394	1,818	188,212	3
June	3	2011	--	--	154,680	38,470	193,150	189,679	20	189,700	2,903
June	4	2011	--	--	154,103	37,875	191,978	188,567	17	188,584	2,131
June	5	2011	--	--	155,213	37,835	193,048	189,309	30	189,339	1,182
June	6	2011	--	--	154,196	39,258	193,454	188,441	17	188,459	3,024
June	7	2011	--	--	154,187	39,304	193,491	188,689	27	188,717	7
June	8	2011	--	--	140,019	35,283	175,302	77,490	99,191	176,681	2,991
June	9	2011	--	--	155,061	38,165	193,226	29	188,025	188,055	3,283
June	10	2011	--	--	154,765	38,538	193,302	2	185,006	185,008	3,058
June	11	2011	--	--	155,072	38,028	193,100	24	187,667	187,691	3,031
June	12	2011	--	--	154,617	38,718	193,335	36	189,608	189,644	6,176
June	13	2011	--	--	154,883	38,323	193,207	7	183,558	183,565	3,015
June	14	2011	--	--	155,098	37,885	192,983	22	190,327	190,349	3,150
June	15	2011	--	--	154,547	38,640	193,186	89,720	102,931	192,651	2,914
June	16	2011	--	--	155,712	37,213	192,925	87,982	98,429	186,411	3,031
June	17	2011	--	--	157,311	38,086	195,397	9	190,470	190,479	3,038
June	18	2011	--	--	157,694	37,581	195,275	13	189,880	189,893	3,184
June	19	2011	--	--	157,247	38,312	195,558	16	190,923	190,940	6,237
June	20	2011	--	--	156,896	38,606	195,502	10	191,801	191,811	3,151
June	21	2011	--	--	156,999	38,384	195,383	4	188,556	188,560	3,146
June	22	2011	--	--	155,493	38,058	193,551	108,482	78,928	187,410	3,131
June	23	2011	--	--	157,025	37,790	194,814	191,895	29	191,924	3,258
June	24	2011	--	--	157,527	37,484	195,011	191,313	23	191,337	3,143
June	25	2011	--	--	157,399	37,678	195,077	191,110	22	191,132	3,011
June	26	2011	--	--	157,210	37,950	195,160	190,889	25	190,914	3,148
June	27	2011	--	--	157,598	37,437	195,036	190,345	23	190,368	3,018
June	28	2011	--	--	56,789	14,064	70,853	59,736	34	59,771	3,134
June	29	2011	--	--	4	3	7	2	33	34	2
June	30	2011	--	--	69,748	17,829	87,578	7,805	71,839	79,644	3
Total Monthly Volumes (gal)			0	0	4,312,859	1,059,462	5,372,321	2,707,614	2,529,291	5,236,904	83,523
Average Pump/Injection Rates (gpm)			0.0	0.0	99.8	24.5	124.4	62.7	58.5	121.2	1.9

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW 3D and PE 1 were operated during June 2011 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW 2D and TW-2S were not operated during June 2011.

b. Effluent was discharged into injection wells IW-02 and IW-03.

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during June 2011 is approximately 0.97 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

Appendix C
Flowmeter Calibration Records

Flow Calibration with Adjustment

Endress+Hauser



People for Process Automation

30057866-1275190

41724888

Purchase Order Number

USA-49310090-40 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order Code

PROMAG 23 P 2"

Transmitter/Sensor

6A021F16000

Serial N°

~~FIT-100~~

Installed at PE-1 7/6/2011

Tag N°

AR

FCP-6.C

Calibration rig

155.6102 GPM ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9178

Calibration factor

0

Zero point

72.9 °F

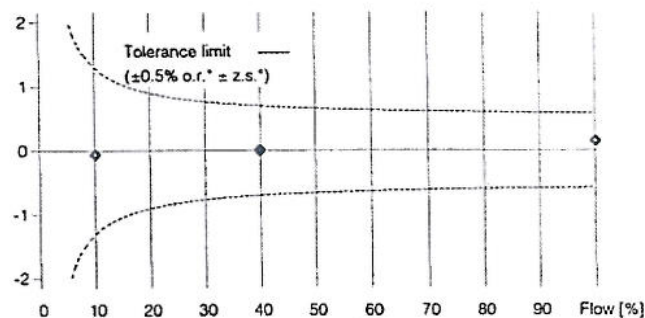
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.5	30.0	7.7502	7.7457	-0.06	5.59
39.9	62.1	30.0	31.071	31.070	0.00	10.38
39.9	62.1	30.0	31.073	31.078	0.02	10.38
100.2	156.0	30.0	78.041	78.156	0.15	20.06
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



*z.s.: Zero stability

For detailed data concerning output specifications of the unit under test, see technical informations (TI)

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

11-29-2004

Date of calibration

Endress+Hauser
2350 Endress Place
Greenwood, IN 46143

Tim Swick

Tim Swick

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

Flow Calibration with Adjustment

30107893-1304706

WWRA-002048-F

Purchase order number

US-19054161-10 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037016000

Serial N°

~~FIT-1202~~ FIT-102 TW-3D

Tag N°

FCP-6.F

Calibration rig

155.6102 GPM (100%)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9154

Calibration factor

0

Zero point

76.2 °F

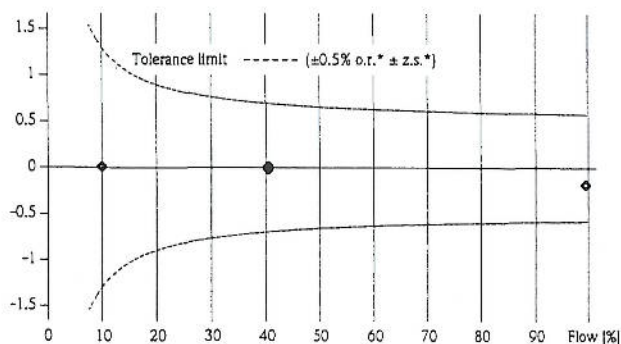
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
9.9	15.5	30.1	7.7531	7.7537	0.01	5.59
40.5	63.0	30.1	31.560	31.554	-0.02	10.47
40.5	63.0	30.1	31.569	31.574	0.01	10.48
99.5	154.8	30.1	77.589	77.448	-0.18	19.89
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA) and Aurangabad (IN).



09-12-2007

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Tim Swick

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

Flow Calibration with Adjustment

90092171-1385072

WWRA-000923-F

Purchase order number

US-19050353-20 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter, Sensor

7700F216000

Serial N°

~~FIT-103~~

Installed at TW-2D 7/6/11

PE-1

AR

Tag N°

FCP-6.F

Calibration rig

155.6102 GPM

($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9289

Calibration factor

0

Zero point

74.9 °F

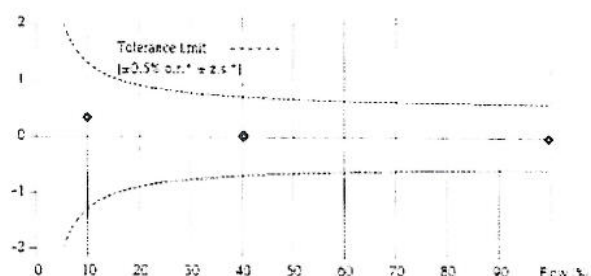
Water temperature

Flow [m]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ e.r.* [%]	Outp.** [mA]
10.0	15.5	30.1	7.7642	7.7895	0.33	5.60
40.5	62.9	30.1	31.549	31.556	0.02	10.47
40.5	62.9	30.1	31.546	31.541	-0.02	10.47
99.7	155.1	30.1	77.735	77.718	-0.02	19.95
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*e.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.
The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

11-30-2006

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

M. E. Trueblood Jr.

Morris E. Trueblood Jr.

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

Flow Calibration with Adjustment

30057870-1275191

41724888

Purchase Order Number

USA-49310090-40 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order Code

PROMAG 23 P 2"

Transmitter/Sensor

6A022016000

Serial N°

FIT-101 / TW-25 / installed 7/28/05

Tag N°

FCP-6.C

Calibration rig

155.6102 GPM ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9207

Calibration factor

0

Zero point

74.1 °F

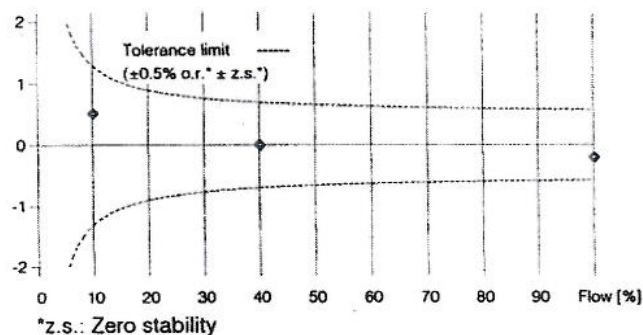
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.6	30.0	7.7910	7.8318	0.52	5.61
40.0	62.3	30.0	31.157	31.160	0.01	10.40
40.1	62.4	30.0	31.229	31.229	0.00	10.42
100.2	155.9	30.0	78.017	77.856	-0.21	20.00
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see technical informations (TI)

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

11-29-2004

Date of calibration

Endress+Hauser
2350 Endress Place
Greenwood, IN 46143



Tim Swick

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

Flow Calibration with Adjustment

30171212-1304705

WWRA-006931-F

Purchase order number

US-19068473-30 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C036F16000

Serial N°

FIT-1201

Tag N°

FCP-6.F

Calibration rig

155.6102 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9101

Calibration factor

-34

Zero point

78.7 °F

Water temperature

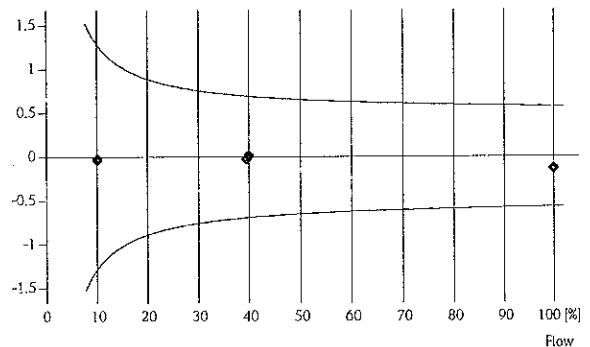
Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.1	15.7	30.2	7.8942	7.8921	-0.03	5.61
39.5	61.5	30.2	30.956	30.950	-0.02	10.32
39.9	62.1	30.2	31.263	31.268	0.02	10.39
100.0	155.7	30.2	78.338	78.232	-0.14	19.98
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.

Tolerance limit: $\pm 0.5\%$ o.r.* \pm Zero stability



For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

John Davis

John Davis

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

08-06-2010

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Flow Calibration with Adjustment

30171217-1275192

WWRA-006931-F

Purchase order number

US-19068473-20 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A022116000

Serial N°

FIT-102

Tag N°

FCP-6.F

Calibration rig

155.6102 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9092

Calibration factor

0

Zero point

79.6 °F

Water temperature

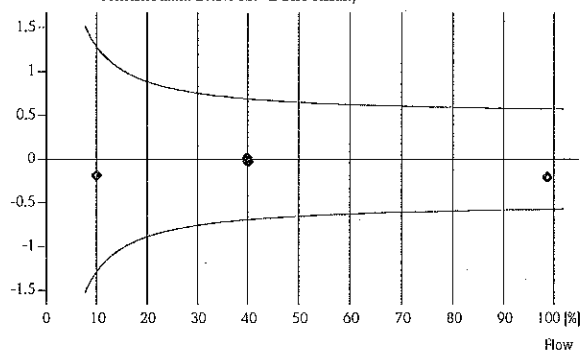
Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.5	30.2	7.8009	7.7865	-0.18	5.59
39.9	62.0	30.2	31.203	31.209	0.02	10.38
40.1	62.4	30.2	31.360	31.353	-0.02	10.41
98.8	153.8	30.2	77.402	77.243	-0.20	19.78
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.

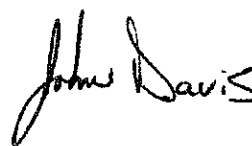
Tolerance limit: $\pm 0.5\%$ o.r.* \pm Zero stability



For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).



John Davis

Operator

Certified acc. to
MIL-STD-45662A

ISO 9001, Reg.-N° 030502.2

08-06-2010

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Flow Calibration with Adjustment

30092504-1385273

WWRA-000923-F

Purchase order number

US-19050353-40 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P80-AL1A1AA022AW

Order code

PROMAG 23 P 3"

Transmitter/Sensor

7700F316000

Serial N°

- FIT-702 / Combined Inj. Wells
flow to IW-2 & IW-3 / installed 12/19/05

Tag N°

FCP-20 MEDIUM

Calibration rig

398.3621 GPM ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

1.1873

Calibration factor

0

Zero point

76.7 °F

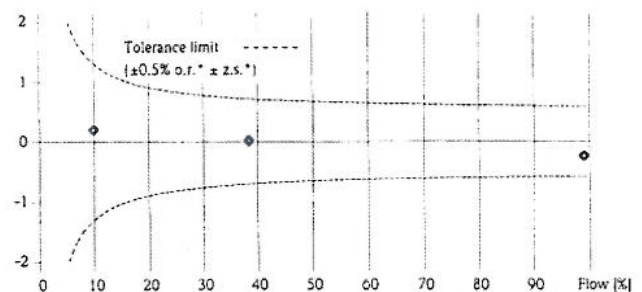
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
9.9	39.6	60.8	40.120	40.199	0.20	5.59
38.5	153.2	60.8	155.374	155.417	0.03	10.16
38.5	153.3	60.9	155.578	155.582	0.00	10.16
99.1	394.9	60.9	400.783	399.816	-0.24	19.82
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



*z.s.: Zero stability

For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.
The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Tim Swick

12-07-2006

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Tim Swick

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

Flow Calibration with Adjustment

20132467-1364709

WWRA-004329-F

Purchase order number

US-19061458-10 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1AAC22AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037316C00

Serial N°

 Installed at RO Concentrate 4/1/2011
 FIT-205 ~~FIT-1202~~ IW-02 ~~AR~~

Tag N°

FCP-6.C

Calibration rig

155.6102 GPM ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9146

Calibration factor

0

Zero point

76.2 °F

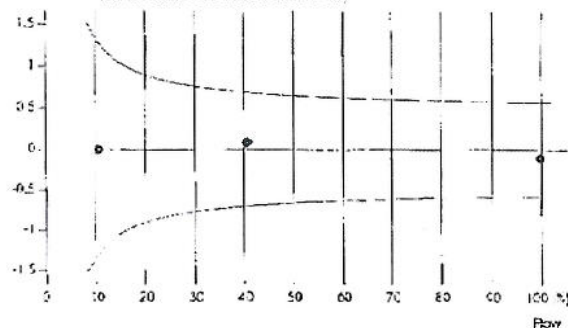
Water temperature

Flow pt	Flow [GPM]	Duration N	V target [US GAL]	V meas [US GAL]	Δ out. %	Outp.** [mA]
10.0	15.5	30.1	7.7933	7.7939	0.01	5.60
40.2	62.5	30.1	31.394	31.422	0.09	10.43
40.2	62.5	30.1	31.416	31.448	0.10	10.44
99.8	155.3	30.1	78.006	77.928	-0.10	19.95
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*out. of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.

Tolerance limits $\pm 0.5\%$ o.r.* & Zero stability

For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

C2-26-2009

Date of calibration:

 Endress+Hauser Flowtec, Division USA
 2330 Endress Place
 Greenwood, IN 46143



 William Darnell
 Operator

 Certified acc. to
 MIL-STD-4562A
 ISO 9001, Reg.-N° 03C502.2

Appendix D
Second Quarter 2011
Laboratory Analytical Reports
